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## ORIGINAL ARTICLES.

### ACUTE NON-SUPPURATIVE ENCEPHALITIS: WITH REPORT OF A CASE.

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CASES of acute non-suppurative encephalitis are not commonly reported in medical literature. Strümpell well states it is an exceptional disease and that our information concerning it is scanty. For this reason I believe that the following observations are noteworthy since they introduce what appears to be a most typical example of this condition.

Personally I am not inclined to think the disease so rare as generally believed, and, I think, that we may safely paraphrase Strümpell's statement and more certainly say that the disease is exceptionally recognized, largely due to the fact that our information concerning it is scanty.

The symptomatology of the condition is so similar to that of many other diseases that doubtless clinical cases are not infrequently recorded as of other forms of disease. Furthermore, the gross lesions may be so slight as to throw no further light on the case, even after post mortem examination, as in the instance I am about to present. Microscopical examination, in at least a considerable number of instances is the only possible method for its certain detection, and it is necessary that these studies be thorough in order that the condition be definitely recognized.

It is generally admitted that a considerable number of cases recover, either wholly or partly, depending on the extent and the location of the lesions. Probably then, the disease is much more frequent than generally supposed, and that its reported rarity is partly due to the great difficulty of differential diagnosis and because most of the cases fall naturally into the care of the more or less sceptical practitioner, who, unless the case terminate fatally ascribes it most likely to "hysteria," or because in the fatal cases the post mortem investigations are not sufficiently thorough to clearly identify the condition.

It appears to me that one of our most serious errors in the consideration of the disease lies in our very narrow conception of its etiology. Why should we not accept as an etiological factor every agent which is able to set up inflammatory processes in other parts of the body, as in the liver or kidney? Considering the brain in the same broad pathological sense as we do these more fully understood organs, we may consistently enlarge the generally accepted etiology to include nearly all inflammatory excitors. Of such, toxic

agents are doubtless the most frequent. Among the toxins we must include many chemical poisons, of which alcohol is doubtless the most frequent, metabolic poisons and those toxins produced by the growth or action of bacteria. To these agents may also be added the inflammation following traumatism. There is no reason why all these factors should not enter into the production of inflammation of the brain, as they do in inflammatory diseases of other parts of the body. Modern pathology cannot tolerate the narrow and entirely fantastic idea that inflammatory processes are always produced by bacteria or their products, and yet I find this absurd theory stated to be the only possible explanation for acute cerebritis, in the articles of men, writing but a few years ago, who certainly should have known better.

The lesions of acute non-suppurative cerebritis may be considered in the same broad light and will be found to be of the same general character as those of inflammatory disease elsewhere, remembering, of course, the special histological characteristics of the cerebral tissues. Bearing this in mind, it is quite unnecessary that we sub-classify non-suppurative encephalitis as hemorrhagic or not, for as in all inflammatory disease, whether hemorrhage takes place or not, depends entirely on the degree of the process and to a certain extent on the location of the lesions. Probably the reason that the hemorrhagic stage is relatively much more frequently reported is that hemorrhagic extravasation takes place in the advanced cases where diagnosis is more certain and death more likely to occur, while the post mortem lesions are of so striking a character as to be clearly evident to the most casual observer. Where extravasation does not take place, diagnosis is more difficult, and complete or partial recovery is probably the rule, while the gross lesions are of so minute a character as to escape all except the most careful investigations. I have demonstrated this to be the case in two instances of the acute non-suppurative cerebritis of acute alcoholism.

Acute encephalitis may terminate in death if the disease involves part of the encephalon the perfect function of which is essential to life. The process may extend to the pons, cerebellum and to the medulla.

Complete recovery may take place if the cause of the process disappear or exhaust itself, and if the lesions already produced be not too extensive or situated in vital centers. In such cases more or less complete absorption of the inflammatory exudate probably takes place. This is of course less frequent where hemorrhagic extravasations have taken place.

On the other hand partial absorption only, may

take place and cicatrices of hyperplastic neuroglia mark the sites of the old inflammatory foci, with the result of more or less disability of the function of the involved portions of the brain. In these cases a picture somewhat resembling that of disseminated sclerosis may follow. Such conditions are not at all uncommon in chronic alcoholics, or after severe cases of insolation, as stated by Collins.

It has seemed wise to me to consider the disease in this very general way, hoping that I might thereby attract more attention to the fact that the pathology of acute non-suppurative encephalitis is identical to similar processes affecting other organs. For a detailed account of the minute changes the readers are referred to the many excellent articles on the subject and to the lesions well typified in the following case which I now wish to present.

*History.\**—The patient was admitted to St. Vincent's Hospital, on Oct. 19, 1902. The history is as follows: Female, aged nineteen years; domestic. She has been a heavy tea drinker, otherwise negative as far as can be ascertained; family history is negative. Her previous history was obtained at her place of employment. The patient had been subject to headaches for a considerable length of time, also to "bilious" attacks, some of which came on at the time of the monthly sickness. She had such an attack preceding present illness by a day or so. She was rather dull mentally.

On the night previous to her entrance to the hospital, she was apparently as well as usual. She did not appear at her usual hour on the next morning, and was found in her room in an unconscious condition. A physician was summoned but he was unable to arouse her. The patient had been accustomed to dose herself with anti-kamnia to control her headaches, and a box of these powders was found in her room. Her condition on admission was: Temperature, 100.4° F.; pulse, 130; respiration, 40. Patient is unconscious. Respirations are stertorous. There is no muscular rigidity, no twitchings and no paralysis. In response to pin pricks the patient draws away the hands and feet. The patellar reflexes are absent. The pupils are moderately dilated and react somewhat sluggishly to light. (The pupils were said to be "pin point" when she was first discovered.) The patient is unable to swallow, and does not arouse to any of the usual forms of stimulation.

The heart and lungs are normal. There is edema of the extremities and Kernig's sign is absent. No tache is manifested nor rigidity of the neck.

October 21: Urinary examination gave specific gravity 1.018; trace of albumin present; no casts. Temperature since admission has varied from 100° to 101° F. There has been incontinence of urine, and bowels were moved in re-

sponse to croton oil, otherwise the condition is unchanged.

October 23: Urine, 1.024; trace of albumin; a few granular casts; many red and white blood cells.

October 25: Patient removed to another ward. Nurse reports that patient's back is very red over the sacrum, the skin in this location is slightly abraded. Incontinence of urine continues, though the patient is regularly catheterized. Patient seems a little brighter. The temperature has gradually been rising about one degree daily since Oct. 21, and is 104° F. to-night; leucocytosis of 14,000; eight grains of urea per ounce of urine.

October 27: Yesterday the patient twice took two ounces of water by mouth, otherwise all nourishment has been administered by stomach tube. The pulse averages 130; patient put on "mixed treatment."

October 29: The patient moans a good deal at night. Temperature varies from 102° to 104° F.; pulse about 140.

October 30: The patient spoke once yesterday, otherwise there has been no change. She spoke again to-day; was very noisy during the night. Urine: 1.029; faint trace of albumin; few hyaline casts; five grains of urea per ounce. The amount of urine has averaged over 30 ounces in so far as can be ascertained. The bed-sore is rapidly getting worse. White blood cell count 20,000; Widal reaction negative.

November 2: Yesterday morning the patient spoke rationally, complained of headache and of pains all over. She moved the head and hands; knee-jerks still absent; Babinski reflex marked; spoke again to-day; takes nourishment by mouth; incontinence of feces since yesterday; patient very noisy at night; mixed treatment discontinued. Redness and edema over both mastoid processes, no discharge from ears, drum membranes are intact, and there is no rigidity of the neck. A bed sore is developing over the right heel, and the sacral bed-sore has sloughed to the bone.

November 6: Yesterday the foot-drop was marked. There was no muscular response to pin-pricks, nor does patient wince when pricked on the legs, but when she is pricked above the knees and on the trunk, she does. Her temperature is 102° to 105° F.; pulse 140-160. Patient is placed on bromides grs. xxx q.4.h.; moaning almost constantly. Despite cardiac stimulation the pulse became weaker and the patient died with a temperature of 106° F. at 1.30 P.M.

Blood cultures taken several days before death were reported negative. The patient had begun to menstruate several days after admission, which probably accounts for the presence of blood in the early specimens of urine. Examination of the eyes several days before death showed no ocular disease. A post-mortem examination was obtained shortly after death. The necropsy was conducted by Dr. Theodore Janeway, to whom I am indebted for the tissues of the case. No gross

\* I am indebted to Prof. Hermann M. Biggs for the history of this case, and for permission to include it in this study.



lesions were found. It was noted that the cerebral tissue was somewhat lighter than normal in color, and its consistence was perhaps slightly increased. The protocol is not incorporated in this study, since its findings, bearing on the neurological symptomatology, are entirely negative.

Immediately after removal from the body the tissues were placed in 3 per cent. formalin solution. They were subsequently removed to appropriate fluids for the methods utilized in this study.

**Microscopical Examination.—Cerebral Cortex:** (Left precentral lobule). The lymph spaces of the pia-arachnoid are greatly dilated and contain a serous exudate in which lymphocytes are abundant. These cells have also infiltrated the stroma of the membrane. Connective tissue cells are numerous, and their nuclei show many evidences of proliferation. The blood vessels of the membrane are moderately congested, but their walls are not thickened and they are otherwise in normal condition, except that several of them contain masses of antemortem clot. A few small *Corpora amylacea* are found just beneath the pia-arachnoid and in the cortical tissue. They are also present in the membrane, but in less number. The outer layer of the cortex shows considerable fine granular disintegration, apparently from maceration by the meningeal effusion.

The blood-vessels throughout the cortex and in the subcortical white matter are much congested. Their walls are not thickened, but the perivascular lymph space is almost universally dilated; the lymph channels independent of the blood-vessels are also generally dilated. There are a few small oval or circular areas of lymphocyte infiltration scattered throughout the cortex, they seem to have no definite location, but are usually associated with a patch of unusually highly cellular neuroglia.

The layer of tangential nerve fibers shows a considerable number of fibers which exhibit large varicose swellings, sometimes of very large size and separated by narrow constrictions. Other fibers have become entirely broken up and their sheaths contain large clear vacuoles, indistinct lines of granules, or entirely refuse the stain. *Corpora amylacea* are found in this layer, but they are infrequent and of small size. Otherwise the molecular layer of the cortex shows nothing except the general lesions already mentioned. (Hematoxylin and Eosin, Pal-Weigert, Marchi.)

The layer of small pyramidal cells shows no gross ganglion cell alteration, no distortion, shrinkage or disintegration. Frequent cells, however, exhibit alterations in the chromophilic plaques (Nissl's methylene blue), and in some cases the nucleus is also altered in its appearance. The most frequent change appears to be a tendency toward chromatolysis, but occasional cells show the chromatic substance broken into small, very highly staining masses.

The ganglion cells of the large pyramidal cell layer (Nissl's stain) show more marked changes. Some of them are shrunken and respond diffusely

to the stain, showing none of their finer normal structure, while others exhibit no variation in general form, but manifest cytoplasmic changes. These consist most commonly of a general chromatolysis, sometimes affecting both cytoplasm and nucleus, but generally seen only in the protoplasm. Another common form of degeneration, probably a less marked type of that just mentioned, is a breaking down of the plaques into a fine, slightly chromatic detritus. In the less marked stages the general outline of the normal chromatic arrangement is still seen but it has failed to respond to the dye. Wherever the cell protoplasm is degenerated, like changes are generally also present in the processes of that cell. In some places distinct spindle-shaped swellings of the neurite and dendrites are present. A considerable percentage of the cells show a tendency of the nucleus to wander toward one side of the cell. Other types of degeneration are evident in these cells, but those mentioned are most frequent. Lymphocytes are found here and there in the pericellular space, sometimes pressing upon the ganglion cell.

The white matter beneath the cortex, representing the fibers from these areas, shows many pathological alterations. One of the most remarkable of these consists of occasional areas in which active proliferation of the neuroglia is present. They vary from 1 to 2 mm. in diameter. In these places many large oval or round cells are found, closely packed together, intermingled with lymph-

FIG. 1.



Microphotograph. Objective Leitz No. 6. Ocular No. 3. Degenerated fibers in subcortical white matter. From left precentral lobule. Marchi's method.

ocytes and neuroglia cells. These abnormal cells are about the size of an eosinophilic leucocyte, are usually mononuclear but occasionally contain two nuclei and their cytoplasm is finely granular. The distribution of their chromatin indicates that they are dividing rapidly. They appear like endothelial cells but probably are of neuroglial origin. About these patches of infiltration the invading cells gradually fade off into the tis-

sue becoming more and more scattered, so that no marked line of extension is present. Many of the lymph channels in this region of the brain are dilated, or contain the remains of an exudate apparently of serous character. *Corpora amylacea* are also found in various stages of formation, but they are not numerous. Numerous degenerated nerve fibers are demonstrable in these areas. (Pal-Weigert, Marchi.) The degenerations are apparently of somewhat recent origin, and many of the degenerated fibers incompletely retain the Pal-Weigert stain.

*Anterior Portion, Left Inferior Frontal Gyrus* (Marchi's method).—Changes similar to those described in the precentral lobule are present, but

FIG. 2.



Microphotograph. Objective Leitz No. 6. Ocular No. 3. Area of cellular infiltration in subcortical tissue of left precentral lobule. Thick section. Stained in hematoxylin eosin.

the alterations are of very much less marked degree and the number of degenerated fibers in the subcortical white matter is small, only five or six being seen in each Zeiss "D. D." field.

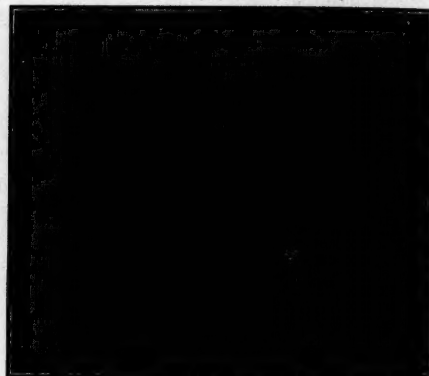
*Left Superior Temporal Gyrus* (Marchi's method).—Degenerated fibers are more frequent in these sections than in those of the previous gyrus, but they are still infrequent. The lymphatic and vascular lesions are also more marked, but much less so than in the precentral lobule.

*Left First Occipital Gyrus* (Marchi's method).—Degenerated fibers are abundant, but are less numerous than in the first lobule examined. The other lesions are present in corresponding degree.

*Left Internal Capsule.*—Small areas of cell infiltration, similar to those described above are found in the tissue of the nuclei bordering on the internal capsule. Some of the larger-sized vessels passing through the internal capsule are surrounded by quite marked infiltrations of small round cells. With these are a few polynuclear cells and in the surrounding tissue a few plasma and other cells similar to those of the other infiltrated areas. *Corpora amylacea* are numerous about the lymph spaces, some of them are of large

size and lie within the clefts. Many of the fibers in the internal capsule are degenerated, and are

FIG. 3.



Microphotograph. Objective Leitz No. 3. Ocular No. 3. Degenerated fibers anterior genu, left internal capsule. Marchi's method.

limited to no particular part of the tracts but are scattered throughout. (Pal-Weigert, Marchi.)

*Cerebellum.*—The membranes of the cerebellum show the same changes as those of the cerebrum, but the infiltration is not so marked. A few large corpora amylacea are present about some of the larger meningeal vessels and in the outer portion of the molecular layer. The blood-vessels of the cerebellum are congested as in the cerebrum, but the dilation of the perivascular lymph spaces is not so marked here as there and the lymph channels in other parts of the tissue are normal.

Many of the Purkinje cells show degenerative cytoplasmic alterations, although all the ganglion cells are free from the grosser pathological changes. The most frequent cytoplasmic lesion (Nissl's stain) consists of a partial breaking up of the plaques into a fine, partially chromatic dust, while the general outline is still evident in most instances; in some cases the remaining fragments are hyperchromatic. A good many of the nuclei in the most altered cells show a chromatophilia. The alterations mentioned generally extended into the cell processes, while the large ganglion cells of the granule layer show very similar protoplasmic changes, but the granule cells show no apparent lesion.

The fibers in the white matter of the cerebellum exhibit nodosities or swellings at various parts of their course, but the degenerations are not advanced or general. (Pal-Weigert, Marchi.)

*Pons.*—The blood vessels throughout are considerably congested, but no areas of extravasation are present. The perivascular lymph spaces show no dilation but the independent lymph spaces show occasional dilations, though nowhere so marked as in the cerebrum.

*Corpora amylacea* are quite numerous, particu-



larly along the floor of the fourth ventricle, and among the fibers of the pyramidal tracts.

Many of the fibers in the pyramidal portion of the pons show extensive and quite general degenerations. (Pal-Weigert, Marchi.)

No sections were stained especially to ascertain the condition of the ganglion cells of the ventricular floor, but by ordinary methods no lesions are evident.

*Medulla Oblongata.*—The blood vessels are quite universally though but moderately congested, and some of them are surrounded by an exudate of small round cells, never very extensive. The perivascular lymph spaces are usually dilated, but not extremely so. *Corpora amylacea* are present and are most numerous just beneath the floor of the ventricle, in the pyramids and particularly just beneath the membranes. The membranes of the medulla show the same changes as were noted in those of the encephalon. One small area on the left side, in the floor of the ventricle, shows a patch of infiltration, but without pus formation. Except for the general perivascular infiltration no direct evidences of inflammation are found.

From 40 to 50 per cent. of the fibers in the pyramids of the medulla are degenerated, as shown by the Marchi method; the degeneration is much less apparent in sections stained by the method of Pal-Weigert. The cerebellar peduncles also show quite a number of degenerated fibers, but the degeneration here is by no means general. The fibers in the fillet are normal, but a few degenerated ones are seen in the lateral cerebellar tract. None of the fibers from the *Corpora dentata* or of the other transverse tracts are degenerated.

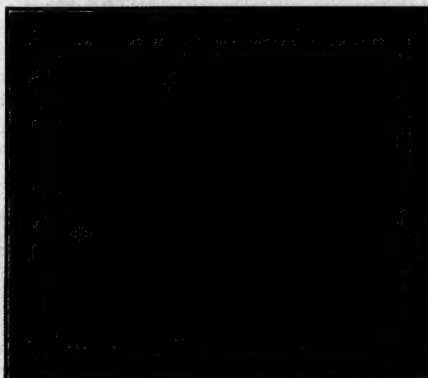
No gross alterations are present in the ganglion cells of the nuclei of the cranial nerves, situated in the floor of the fourth ventricle, but sections low down in the medulla show pronounced cytoplasmic alterations in the cells of the nucleus gracilis and cuneatus (Nissl method). These changes consist of various degrees of chromatolysis affecting both cytoplasm and nucleus in the most pronounced cases and in nearly all instances most extreme in the central portions of the cells. The plaques are much disintegrated in the most extreme examples, but in other cells are not broken up but simply stain faintly or exhibit a very finely granular condition. There is no cell shrinkage or nuclear eccentricity.

*Spinal Cord (Cervical Region).*—The membranes of this portion of the cord show a general small round-celled infiltration of slight to moderate degree. The blood-vessels are moderately congested, but considerably less so than those of the cerebrum, but the lymph spaces about the vessels and nerve cells and those of independent distribution are generally dilated.

There is a general and almost complete degeneration of the fibers of the direct and cross pyramidal tracts. This degeneration has not become of sufficient standing to show distinctly with the Pal-Weigert stain, but is very evident in

sections prepared by the Marchi method. There are, in addition, a great many degenerated fibers

FIG. 4.



Microphotograph. Objective Leitz No. 3. Ocular No. 3. Degenerated fibers in right cross pyramidal tract of cervical spinal cord. Marchi's method.

in the lateral cerebellar tract and isolated degenerated fibers are also seen in the mixed lateral, and posterior zones, particularly in their peripheral portions.

The lymph spaces about the ganglion cells, especially those of the anterior horns, are dilated, but there has been no shrinkage or other gross alterations of those cells except for a frequent tendency toward eccentricity of the cell nucleus. Many of these cells, however, show quite pronounced cytoplasmic alterations (Nissl method). One of the most common of these, is a clumping of the chromatic material into large irregular masses, either in the center or in the peripheral portions of the cell. The spaces between these clumps are often filled in with fine granules of slightly chromatic material. Many of the nuclei show chromatolysis of quite marked degree. Other types of ganglion cell degeneration are also found, probably due in part at least to post-mortem changes or those alterations which immediately preceded death.

*Dorsal Spinal Cord.*—The membranes of this part of the cord show relatively less exudation but the vessels of both the membranes and of the medullary tissue show much more marked congestion than in the cervical portion, as is generally the case, for the dorsal portion of the cord is particularly prone to congestion. The lymphatic dilatation is less marked than in the cervical levels.

The degenerations are of about the same extent and involve the same distribution as in the cervical cord, but the isolated fibers in the mixed lateral and lateral cerebellar tracts are rather more infrequent. The number of degenerated, though always isolated fibers in the posterior tract is, perhaps, greater than in the upper levels. The ganglion cell changes are like those of the cervical cord.

*Lumbar Spinal Cord.*—Meningeal exudation is less marked than in the previous levels and the congestion of the blood vessels is of about the same degree as in the cervical cord, considerably less than in the dorsal portion. The dilation of the lymph spaces is more marked than in the dorsal cord.

In this region the degenerated fibers are more strictly confined to the direct and cross pyramidal tracts, but there are also a good many isolated degenerated fibers in the antero-lateral tracts, those in the posterior tracts are less frequent than in the cervical or dorsal cord.

Ganglion cell degeneration is much less marked in this region, but where present is of the same character as that found above. Nuclear eccentricity is less pronounced than in the upper levels.

*Lumbar Posterior Root Ganglion.*—There is no inflammatory infiltration about or in the ganglion. A good many of the ganglion cells show more or less shrinkage, but there are no other gross changes. The capsular cells of the lacunæ are in normal condition, and exhibit no tendency toward proliferation.

The cytoplasmic condition of the cells shows a considerable variation. Some of them appear perfectly normal (Nissl stain), but others exhibit a finely granular disintegration of the plaques, generally with proportionate chromatolysis, but a few cells show peripheral chromatophilia. The nuclei are apparently normal throughout.

*Sacral Spinal Cord.*—The meningeal exudation is very slight and the dilation of the lymph channels much less pronounced than in the other portions of the medulla spinalis. The degenerations are limited almost exclusively to the small areas representing the cross and direct pyramids. Isolated degenerated fibers in the other tracts are almost absent.

Ganglion cell degenerations are of much more limited extent (relatively) than in the previously considered levels of the cord—nearly all the cells are normal.

Microscopical examination of the tissues of the heart, liver, spleen, kidneys and pancreas showed no marked characteristic or significant changes.

The chief lesions of the central nervous tissues may be summarized as follows:

1. Cerebrospinal meningitis, probably secondary to cerebritis and of the "cellular" type as described by Delafield and Prudden.

2. General non-septic cerebritis affecting all parts of the cerebrum, but most marked in the cortex and particularly so in that of the motor areas. The disease is characterized pathologically by perivascular round-cell infiltration, dilation of the lymph spaces and by areas of neuroglial proliferation. The changes are further identified as inflammatory by the presence of occasional plasma cells.

3. Degeneration of many of the ganglion cells of the cortex. From the character of the lesions of these cells it is inferred that in most cases the changes have been of recent origin. Possibly some are post-mortem alterations.

4. Degeneration of many of the fibers arising from the large pyramidal cells of the cortex, most marked in those derived from the motor areas.

5. Diffuse degeneration affecting many of the fibers passing through both internal capsules.

6. Inflammation of the tissues of the cerebellum, of much less marked degree than in the cerebrum, but apparently of the same character and accompanied by similar, but much less extreme changes in the cells and fibers.

7. Degeneration of many of the descending fibers of the pons and medulla.

8. Degeneration of the chief descending tracts of the spinal cord with degeneration of occasional fibers in ascending tracts, possibly aberrant descending fibers.

9. Slight, probably secondary cytoplasmic degeneration of the ganglion cells of the anterior horns of the spinal cord.

In brief, we are dealing with a diffuse non-suppurative inflammation of the brain, most marked in the subcortical motor areas, with the resulting degeneration of those axis cylinder processes which extend into the spinal cord and which have their origin in the involved portions of the cortex.

Our examination has demonstrated clearly that the case is one of organic and not functional disorder, and the pathological findings satisfactorily explain the symptomatology of the case.

As to the origin of the disease, however, nothing is explained. From the character of the changes in the tissues and from the bacteriological examination of the blood, I think that we are safe in assuming that the cause was not infection.

The almost inevitable conclusion must be, unless some additional facts in regard to the case are discovered, that the lesions are of toxic origin. This toxin may perhaps have been of bacterial origin, for instance, it is stated that like conditions have resulted in influenza. It may have been of metabolic formation, or possibly some drug introduced in toxic doses. It has been noted in the history that the patient was in the habit of taking various headache powders, and it is possible that these may have caused the cerebritis, though I have been unable to find any drug, excepting alcohol, and possibly morphine, which are recognized as inducing alterations like those found in this case. Experiments are now under way by means of which we hope to prove or disprove this possibility.

**Diagnostic Value of Lumbar Puncture.**—Greater care in drawing conclusions from the data obtained by lumbar puncture in cases of cerebral disease, is urged by G. ORGELMEISTER (Arch. f. klin. Med., Vol. 76, No. 1-3). In fifteen undoubted cases of tuberculous meningitis, in which this procedure was employed, the formation of floculi in the fluid, considered by many authors to be a distinct characteristic of the disease, was entirely absent in four. The finding of the tubercle bacilli is the only means of making an absolute diagnosis, and in suspected cases of localized cerebral disease, a positive bacteriological result can form the only contra-indication for operative interference.

**THE FORM OF THE URETER.**

BY BYRON ROBINSON, B.S., M.D.,  
OF CHICAGO.

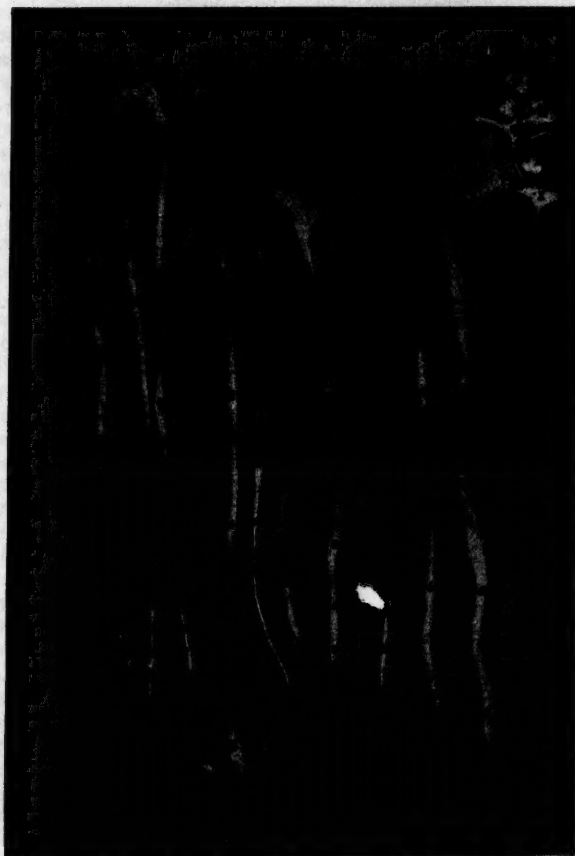
THE ureter is not a uniform calibered tube but consists of ureteral dilatations and constrictions. Calculi lodge at the ureteral isthmuses or constrictions as well as at the turns of compromising flexions. Surgery should be performed at the ureteral dilatations on account of ample lumen and easier manipulation.

Fig. 1 illustrates the form of ten ureters distended with paraffin, demonstrating (a) the three

(5, 5) moderately marked. In each ureter two pelvic spindles (6, 6) exists. The distal isthmuses (7, 7) were less in lumen than the proximal (3, 3).

N. B.—The left ureter 1, presented 5 well-marked spinal ridges projecting in the ureteral lumen. All ureteral dilatations are more prominent in the left. The left ureter (1) was one inch longer than the right (2).

The left ureter (1) is complete, i.e., it presents four calyces (1, 1), pelvis (2) ureter proper and the renal artery lying on the ventral surface of the



ureteral dilatations, spindles (reservoirs) (2, 4, 6); (b), the three constrictions sphincters (3, 5, 7), and (c) the spirality was noted while distending the ureters with melted paraffin, the free ureter would rotate from right to left about two circles.

Nos. 1 (left) and 2 (right). Man, age forty-six years. This pair shows the left calyces (1, 1) dilated and a well-developed pelvis (2). The left proximal ureteral isthmus (3) well marked and distalward located, the right (3) indistinct and elongated, less constricted. The left lumbar spindle (4) the most prominently developed and the more distalward located. The middle isthmuses

calyces and pelvis. The calyces and pelvis were the result of corrosion anatomy. Nos. 3 (left) and 4 (right) woman—. This pair shows well marked right calyces (1, 1), well-developed oval pelvis (2), and distinctly marked right narrow proximal isthmus (3). Prominent right lumbar spindle (4). The right middle isthmus (5) should be placed on a level with the left middle isthmus (5).

Two pelvic spindles exist in each ureter (6, 6). The right lumbar spindle is generally larger in woman than man. The distal isthmuses (7, 7) were larger in caliber than the right proximal (3).



No. 5. (left) lumbar spindle (4) and two short pelvic spindles (6, 6). No. 6 (right) shows short narrow proximal isthmus (3). Two large and one small lumbar spindle (4—), a narrow middle isthmus (5), a short well-marked pelvic spindle (6). Nos. 7 (left) and 8 (right); man, age forty-six years. This pair shows moderately developed calyces (1, 1), double armed slightly developed rounded pelvis (2, 2). Marked but distally located proximal isthmuses (3, 3). Short but marked lumbar spindles (4, 4). Moderately marked middle isthmus (5, 5). Two unequally sized pelvic spindles, on each side (6, 6). Distal isthmuses (7, 7) about equal in lumen to the proximal (3, 3). Nos. 9 (left) and 10 (right), woman, age forty-nine years. This pair shows moderately developed flattened right pelvis (2). Indistinct elongated proximal ureteral isthmuses (3, 3). Slightly developed left lumbar spindle (4) but more marked right one (10). The middle isthmus is but slightly marked on left (5), on the right more marked. The right (10) shows two large and one small pelvic spindle (6, 6). The left ureter (9) shows one pelvic spindle (6°). The distal isthmuses (7, 7) are less in caliber than the proximal.

I removed the ureters here illustrated at post mortems, through the courtesy of Prof. W. A. Evans, immediately injected them with melted paraffin, subsequently dried and painted them white. Dr. William E. Holland executed the photograph. The pairs of ureters are valuable for comparison.

#### A SIMPLE AND RAPID CHROMATIN STAIN FOR THE MALARIAL PARASITE.

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THE recent increase in our knowledge of the alterations in the morphology of the blood which occur in disease is largely due to the simplification in the technic of staining which has been so pronounced in the last few years. As a result of this technical simplicity the clinician has at his disposal the means for the rapid and easy preparation of suitably stained blood smears, and in consequence a large amount of material has been observed and recorded. Believing that any improvement in the technic of blood staining which tends toward ease and simplicity of manipulation may be of use to students and teachers of blood morphology, the writer has felt that certain methods which he has found valuable may not be without interest.

The first experiments were based upon an accidental observation that old alcoholic solutions of the eosinate of methylene blue in the form devised by Jenner<sup>1</sup>, and republished as an independent discovery by May and Grünwald<sup>2</sup> three years later, are capable of giving a fairly good chromatin stain in the young forms of the malarial parasite. The methylene blue component of the

dye is apparently altered by the alkali dissolved from the glass of the container and a portion is transferred into what has been shown by Michaelis<sup>3</sup> to be closely allied to, if not identical with, methylene azure. If a slide containing malarial parasites is stained with this ripened Jenner dye and slowly washed off in distilled water, a moderate chromatin stain is produced showing the larger nuclear masses of the ring forms and also the reddish granules occasionally seen in the bodies of the lymphocytes. Such a selective stain is not, however, produced on smears which are dropped quickly into distilled water or washed off under the tap, for the peculiar quality of the stain which causes it to color the chromatic substance appears only when the dye is in a watery solution and depends perhaps upon some phenomenon of dissociation of the components of the salt in water. The alcoholic solution is not dissociated, and its pure blue color is immediately altered to a reddish purple by the addition of water with the formation of an abundant precipitate.

A number of observers have devised staining combinations in which advantage has been taken of the solubility of the eosinate of methylene blue and methylene azure in methyl alcohol and the power which the mixture has to produce a chromatin stain when diluted with water, among them Leishman,<sup>4</sup> Wright,<sup>5</sup> and Reuter.<sup>6</sup> The latter uses the alcoholic stain only as a stock solution to be diluted with water before use; the others fix and stain at the same time in the methyl alcohol in which is dissolved the precipitate formed by mixing eosin and methylene blue, containing some methylene azure produced by previously heating the methylene blue with a dilute alkali.

To obtain a chromatin stain with the Leishman or Wright mixtures it is necessary to dilute the fresh alcoholic dye with distilled water after it has been in contact with the smear for a few minutes, and allow this combination to act for from three to ten minutes upon the blood spread, but the precipitate which immediately forms when the mixture is diluted is very likely to be deposited upon the smear and give rise to annoying artefacts which can only be removed by treating the slide with strong methyl alcohol and repeating the staining process. The writer has also found after a considerable experience with both methods that it is difficult to obtain constant results even when using smears of the same age and thickness and the same preparation of the stain.

The Wright stain especially, when it is successful, affords an exceedingly instructive smear and demonstrates the chromatin granules of the malarial parasite sharply and well; but as a stain for general class use or for preparing large series of slides for the use of students, the writer has not found it as useful as a much simpler method, using the purified methylene azure as obtained from Grüber. The use of the pure dye, the preparation of which we owe to Giemsa,<sup>7</sup> obviates the uncertain and tedious process of preparing

the methylene azure solution by the treatment with alkalis and gives the staining method much of the certainty and simplicity of the old eosin and methylene blue stain so much used before the introduction of the Ehrlich and Jenner combinations. Giemsa and Nocht<sup>4</sup> recommended staining slides for some time in a dilute mixture of the eosin and methylene azure, a method which is necessary for staining old slides, but unnecessary for fresh preparations. The writer has found that while this eosinmethylene azure combination will stain slides which are from two to three years old and produce under these circumstances an excellent chromatin stain without any of the diffuse bluish color which is usually seen in preparations of slides over one month old, a fact of considerable advantage, especially for the purpose of restaining faded demonstration slides or old-type specimens which show some especially interesting features, that an equally good stain of fresh specimens can be obtained as follows.

Fix the preparation for one minute in strong methyl alcohol, wash off in water and stain the slide for a few seconds with a one-tenth-per-cent. aqueous solution of yellowish eosin. The surplus of the eosin solution should be poured off and a few drops of a one-fifth-per-cent. solution of methylene azure poured over the slide. The staining will be complete in from one-half to one minute and the slide may be washed with distilled or tap water and dried with blotting paper. The best paper for this purpose is a thick, smooth-surfaced variety used by photographers to dry prints. The close grain and hard finish of this paper prevents the deposition of any fiber on the surface of the blood smear.

A longer treatment with the azure solution produces a deeper chromatin stain, a shorter treatment produces a stain of less intensity. If a stain of any particular depth is required the whole process may be easily observed under the microscope, selecting a group of leucocytes as a guide. The stain will be seen to gradually color the nuclei of the polynuclears a deep red, and at the proper point the neutrophile granules will be easily visible with a good four mm. dry lens. At the same time the nuclei of the large and small lymphocytes assume a deep red color and the cell bodies of the large forms color a pale blue, while the bodies of the small cells will be a deep blue. At this stage of the process the malarial parasite is of a pale blue color with deeply red chromatin granules. If the methylene azure has remained in contact with the smear but a short time the red cells will be of a bright pink color, but if the staining is prolonged the red cells become bluish or greenish in color. After prolonged staining with the azure the color of the neutrophile granules generally fades and the bright pink of the eosinophiles is replaced by a bluish tint. For general purposes, therefore, it is best not to stain the slide too long with the methylene azure. By increasing the strength of the azure solution up to one-half of one per cent. the staining process with that substance may be shortened to a few seconds, but

overstaining is much more likely to take place. If the blue color of the red cells is very marked the excess may be removed by treating the smear for about one second with dilute alcohol, say of about 80 per cent., and then washing off in water. Some color is likely to be removed from the nuclear chromatin by this process of decolorization, and the red of the finer chromatin particles of the gametes loses its sharp outline or may be entirely extracted so that the alcohol treatment is not to be recommended for general use. Thus by the use of this process a good chromatin stain can be obtained in three minutes after the blood smear is secured. Such preparations may also be used for differential counting, though for general purposes the Jenner mixture is preferable because the eosinophile and basophile granules are on the whole more characteristically stained. The large and small lymphocytes on the other hand are better demonstrated with the methylene azure. The large mononuclears cannot be constantly separated from the large lymphocytes by any of the dyes containing methylene blue, and are best classed with the large lymphocytes. Beginners may mistake the blood plates, which often lie in depressions in the red cells, for malarial parasites, especially as they stain red with the chromatin dyes. The distinction must be made by the differences in morphology. The blood plate is not sharply outlined and the nuclear substance is in the form of an indistinct mass not surrounded by a clear zone, while the small ring-form of the malarial parasite is very sharp in its outline, as is also the chromatic substance, the latter being surrounded by a clear zone and beyond this by the blue ring of the body of the parasite.

The staining of old preparations cannot be achieved in a satisfactory manner with any of the usual blood stains except the Ehrlich triacid, which does not demonstrate the malarial parasite. By the use of dilute mixtures of eosin and methylene azure, as suggested by Nocht, it is possible to obtain perfect stains from slides which are months or even years old. The older the slide the more dilute must be the stain, and the longer it must remain in the staining fluid. Two methods may be used. The slide should be fixed for at least half an hour in methyl alcohol. Then it may be allowed to remain for from four to twenty-four hours in a strong mixture containing about 50 c.c. of a one-to-a-thousand methylene azure solution to which has been added from two to five c.c. of a one-to-a-thousand aqueous eosin. The mixed solutions are best placed in a Coplin jar and the slides allowed to stand vertically. As a rule, a precipitate is not formed, but if any should form it is not likely to be deposited on the surface of the smear. In case such a precipitate should be deposited on the smear it can be removed by dipping the slide in strong ethyl alcohol for a few seconds and then washing off in water. Slides stained in this manner are usually much overcolored and must be decolorized in 80 per cent. ethyl alcohol and then washed in water. By this means the excess of the blue dye is removed and



the chromatin particles in the malarial parasites are well brought out. The same result may be obtained by staining for from twenty-four to thirty-six hours in the above mixture diluted about five times with distilled water. It is not usually necessary to decolorize slides stained in this dilute mixture. The solutions when once mixed can be used to stain four or five series of slides, after which the color is exhausted.

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## THE CHOICE OF TECHNIC IN OPERATING UPON PROSTATIC OBSTRUCTION.

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I HAVE assembled in this brief article the salient facts in the histories of cases operated upon by perineal galvanoprostatomomy, some of them of quite recent date and others of long standing, in order that, from the record of these cases, the immediate and more or less permanent effect of operation may be noted; and the object of this writing is to demonstrate the fact—or rather to submit evidence bearing upon it—that this operation is applicable to a large proportion of cases in which it is found necessary to remove obstruction to the bladder outlet for the relief of vesical insufficiency when caused either by prostatic hypertrophy or the analogous condition—contracture of the neck of bladder. I believe that the most important element in the causation of vesical insufficiency is the mechanical obstruction at the urethral orifice, and that to accomplish its satisfactory relief the most essential requirement is removal of the obstruction. This obstruction may be an orificial hypertrophy, or a fibrotic contracture, a retro-prostatic lip with a vesical pouch beneath, a greater development of this isthmus in the form of a middle lobe, a unilateral or bilateral enlargement of the prostate protruding upon the urethra, or a combination of any of these formations. Cystitis may sooner or later supervene and become chronic. It greatly aggravates conditions and favors the development of secondary changes in the bladder wall in the form of muscular atrophy and fibrous infiltration.

The day is not far off—if it has not already dawned—when surgeons will unhesitatingly advise sufferers from permanent prostatic obstruction to submit to early operation rather than await the development of serious secondary conditions, or accept the artificial and not unchecked existence incident to so-called catheter life.

As recently as two years ago, the weight of opinion expressed at the meeting of the Ameri-

can Association of Genito-Urinary Surgeons favored palliative treatment in the majority of cases. During the past two years, however, much active work has been done along the line of operative procedure; and so many surgeons have demonstrated the practicability of the various operations performed by them, even in cases of an advanced and apparently hopeless character, that there is now evidence of a decided leaning toward operation in the early as well as the late stages of this morbid condition of mature age. This being demonstrated, as one writer aptly expresses it, "Attention should now be directed to perfecting the operative technic, and to convincing the general practitioner into whose care these cases first come that prolonged catheterism even under the most favorable circumstances, is a dangerous practice."

According to the statistics of Sir Henry Thompson, about 33 per cent. of men beyond the age of fifty-five years are subjects of enlargement of the prostate, while not over 15 per cent. ever suffer from symptoms. Thus 85 per cent. of those having hypertrophied prostates experience no inconvenience therefrom, since the direction of the growth is not such as to interfere with the bladder function.

All observers agree that the size of the enlargement bears no relation to the severity of the urinary distress produced. The orificial hypertrophy or fibrous contracture may be the cause of the most intense and uncontrollable symptoms; the small middle lobe may produce complete retention of urine; while a prostate as large as a cricket ball, weighing 10½ oz. and almost completely filling up the cavity of the bladder—as in one of Mr. Freyer's cases (*British Medical Journal*, Nov. 8, 1902)—may be accompanied by only three ounces of residual urine.

Confronted with these facts it is difficult to believe that, in order to relieve the bladder symptoms which occur in only 15 per cent. of the cases, it is essential to remove the entire gland—or in many instances, more than a very moderate portion of it. Numerous reports of middle-lobe enucleation, of partial extirpation of hypertrophied tissue by knife, scissors, with the prostatic rongeur and with the cautery, which have been followed by ideal results, give weight to this view.

Generally speaking we meet three classes of cases suffering from vesical insufficiency, the result of obstruction at the urinary outlet:

1. Those in which there exists one or the other of the different forms of obstruction without cystitis.

2. Those in which there is more or less longstanding chronic cystitis, producing that train of symptoms collectively called "prostatism."

3. Those cases in which the mechanical obstruction, as well as the chronic cystitis, has existed so long that secondary changes involve the bladder, beginning with hypertrophy and ending in atrophy, contraction of the bladder wall, and decided diminishment in the bladder capacity.



Briefly then, in the first class there is simple obstruction, in the second obstruction with inflammation behind it, in the third obstruction, inflammation and secondary degenerative changes. The object of operation in the first class is to remove the obstruction, and in removing it to do so permanently. In the second class, the same object is held in view with the further purpose of draining the inflamed viscus. In the third class, nothing more can be done than is done in the second; and it is sometimes not possible by means of operation to affect the advanced degenerative changes which occur late in these cases.

In order to accomplish the desired result by any operation, it is absolutely necessary to open the way at the vesical outlet, to lower the barrier, so that, if there be sufficient restoration of the lost tone of the bladder muscle, the organ will be able to empty itself completely. This may be accomplished by lobular enucleation of as much of the glandular structure as may suit the taste of the individual surgeon, or by galvanocautery incisions, which aim to burn a trough through the obstructing tissue and contracted orifice. It is quite frequent to find complete retention of urine, advanced secondary changes, and all the conditions peculiar to prostatic hypertrophy without any enlargement whatsoever of the gland, dependent upon orificial contracture of the bladder outlet of a purely inflammatory character; and this same condition is found in conjunction with prostatic hypertrophy. The removal of a large portion of the gland, without enlarging the orificial contracture and lowering the level of bladder neck, may be the cause of failure by operation to relieve bladder insufficiency.

Mr. William Freyer cites a case of complete vesical insufficiency without prostatic enlargement. The patient, aged eighty-four years, had been dependent upon the catheter for twenty-six years. Practically the entire amount of urine was voided by means of the catheter. No enlargement of the prostate was felt by the rectum. It was impossible to introduce a sound through the urethra, but the presence of vesical calculi was suspected. He opened the bladder with a view to removing both prostate and calculi. Two calculi, one inch in diameter each, were found, but, to his surprise, there was no intravesical enlargement of the prostate. With one finger in the rectum and another in the bladder, it was impossible to find any enlargement whatever of the gland. Nothing was done, except removal of the stones, and the result was no restoration of function.

The writer propounds two rather interesting questions in connection with this case: (1) Is it possible that prostatic atrophy succeeds enlargement, and if so, why did the patient not gain the power of voluntary micturition? (2) Was the case a sample of those one occasionally meets with, in which the patient enters on catheter life sometimes long before the age of prostatic enlargement, and if so, why did the patient not gain the power of voluntary micturition, where neither the enlargement of the prostate nor other tangible

cause was found to account for this condition? I would answer by stating that contracture of the neck of the bladder is a frequent cause of vesical insufficiency and voluntary micturition will not follow operation unless the obstacle be removed.

Compare with the above case one which is almost a complete parallel to it.

The patient, an old gentleman, sixty-two years old, first appeared in Jan., 1890, complaining of great distress and tenesmus, and suffering from chronic complete retention of several years' duration, being entirely dependent upon the catheter. The presence of vesical calculi was determined with the Thompson searcher. A suprapubic cystotomy was performed. Two calculi, about the size of horse-chestnuts, were removed, and a third encysted stone in the region of the ureter as well. There was no intravesical enlargement of the prostate, and nothing further was done.

The patient made a good recovery from the operation; but there was no change whatever, so far as the vesical insufficiency was concerned.

In the fall of 1902, twelve years later, the patient again appeared; he having, during the entire intervening period, relied upon the catheter. Nov. 11, 1902, a perineal galvanoprostatotomy was performed by my colleague, Dr. Keyes, Jr. A dense contracture of the neck of the bladder was found; the prostate being absolutely normal. The contracture was incised by two galvanocautery incisions. The patient was out of bed on the seventh day and left the hospital on the eleventh day. Six months after the operation the patient continues to enjoy voluntary micturition, which was regained shortly after the operation, and he is able to empty the bladder down to about one ounce. The admirable result in this case is beyond criticism.

To-day the choice of operation may be said to lie between prostatectomy by lobular enucleation and prostatotomy by means of galvanocautery incisions. I shall not undertake to discuss the question of complete or incomplete prostatectomy, or of the relative merits of the supra- or infrapubic routes; it being understood that, by prostatectomy, I refer to the operation which, by avulsion, removes a greater portion of the enlarged gland than directly interferes with the outlet to the bladder.

The opinion of surgeons who are adherents of prostatectomy, regarding the operation of prostatotomy, seems to be that it is adapted to moderate growths, such as bar formation and orificial hypertrophy, and to early operation. By some it is thought preferable in the late stages of the malady, when the bladder is contracted and permanent degenerative changes exist, when the kidneys are involved and the general health of the patient is seriously undermined. The inference derived from such an opinion is that prostatotomy is less fatal than prostatectomy, which is undoubtedly the fact.

No thoughtful surgeon will declare that the mortality rate of prostatectomy is trivial. There is no doubt that under improved technic and in

good hands the mortality has materially decreased in the last year or so. It is variously estimated at the present day as being from 6 to 16 per cent., and I am inclined to believe that, taking an average of all well-known operators, it is nearer the higher than the lower figure. Alexander, whose special work in perineal prostatectomy has been an inspiration in this country to other surgeons, always held a conservative position in this particular and is not inclined to make light of the gravity of the operation performed by him. Of 31 cases reported there were three deaths, or about 10 per cent. William Freyer has up to recent date reported 31 cases of total prostatectomy by the suprapubic route. Of this number there were four deaths: two died of mania, one on the twenty-fourth day and the other in the third week, one died of urinary toxemia, and one on the eighth day very suddenly from what he considered to be a heat stroke; but the manner of death is very suggestive of pulmonary or cardiac embolism. There are two other patients who were operated on by him; but as he did not remove all of the prostate he fails to classify them with the other cases. In studying the detailed history of these fatal cases it is difficult to disassociate the operation from the cause of death.

Guit ras collected 152 cases of prostatectomy by various methods (Nov. 2, 1901, *Jour. Am. Med. Ass'n*), showing a mortality rate of 16 $\frac{1}{10}$  per cent.

Parker Syms reports 21 cases of perineal prostatectomy without a death, and thus contributes materially toward decreasing the mean rate of mortality.

In spite of the enthusiasm displayed by one class of surgeons for perineal and by another for suprapubic prostatectomy, there is ever present a reluctance to advise these operations, except in default of milder measures. Thus Dandridge (*N. Y. Med. Jour.*, Jan., 1903) refers to Murphy's method of removal of the prostate by the perineum as the operation which seems to accomplish complete removal of the obstruction with less dangerous disturbance to the parts involved than any of the other procedures yet suggested; but counsels more conservative measures in these words: "I am strongly convinced that the method of choice in the largest proportion of cases of hypertrophy is still the proper and judicious use of the catheter." Mr. William Freyer, one of the most ardent advocates of the suprapubic operation ("Stricture of the Urethra and Hypertrophy of Prostate," London, 1902) in the course of his lectures in which he describes and favors his operation of total extirpation of the gland suprapubically, thus expresses himself: "Holding as I do that in certain cases of this disorder operation is advisable, I have no hesitation in saying that, in the majority, the only advisable treatment is just and cleanly catheterism combined with careful, hygienic living." The habitual use of the catheter with its perils and discomforts is, nevertheless, an unsatisfactory expedient, and it is not

in pace with modern surgical advance to rely upon so undesirable a resource.

Prostatectomy is an operation of lesser magnitude than prostatectomy, and if demonstrated to be safe and effective, the earlier it is employed the safer it is bound to be and the more satisfactory will be the immediate and ultimate results.

By performing prostatotomy by means of galvanocautic incisions the operation is much simplified and convalescence shortened. The value of galvanocauterization in performing prostatectomy has been amply established. The operation is done either through the urethra (Bottini) or through a perineal wound (Chetwood). The selection of technic must be made by comparing the merits of the two methods.

Aside from the question of mortality, which, according to different observers, varies between 6 and 12 per cent., there are, to my mind, a number of insurmountable obstacles in operating by the Bottini method: the uncertainty of the nature of the prostatic growth, its size and conformation; the difficulty of determining the proper length of the incision, especially in the case of a soft prostate; the inability to verify results immediately, and consequently the necessity of performing repeated operations in some instances; the danger of postoperative hemorrhage and sepsis; the absence of vesical drainage. These objections are variously answered by the adherents of the operation, but have not been removed. I can understand that adroit manipulators of the instrument and expert cystoscopists become past-masters in the performance of the Bottini operation; and yet we read of such accidents as render the operation objectionable, even at the hands of these experts.

Freudenberg actually incised a fold of bladder with fatal results. Young states that death was caused in several instances by division of the membranous urethra on account of hemorrhage and extravasation. Too long an anterior incision has also caused a fatal issue and resulted in the abandonment of that incision. In one of Freudenberg's cases, the beak of the instrument burrowed through the rectum. Bangs, Guit ras and Meyer have cut into the membranous urethra, and in two instances the patients were saved only by prompt perineal section. It has been necessary to open the bladder above the bone to control severe hemorrhage soon after the operation, and later to turn out decomposed and septic blood clots.

Perineal prostatotomy with the galvanocautery I have found possesses all the advantages that may be claimed for cauterization and would seem to meet the objections raised against the Bottini method. Perineal cystotomy, which is the first step in the operation, permits an ante- and postoperative examination and affords complete and adequate drainage. I shall not give a description of the technic, having already done so on previous occasions.

Forty-five cases of various types have in all been operated upon by myself and my colleagues. The first 23 patients have been reported



before the American Association of Genito-Urinary Surgeons. The histories of these cases have been published in detail (*N. Y. Med. Record*, May 18, 1901; *N. Y. Med. Jour.*, May 31, 1902). I have been able to trace up many of these patients, and those heard from have maintained the improved conditions which were reported as a result of the operation.

There have been 22 patients subsequently operated upon. One was below forty years of age, and 4 between forty and forty-five years. Of the remaining 17 patients, one was fifty-one and one fifty-six, and the others between sixty-three and seventy-nine years old. Five patients were cases of contracture of the neck of the bladder as a result of chronic, refractory posterior urethritis. Five patients were cases of contracture of the neck of the bladder in men of mature age (between fifty-one and seventy-four years), all of whom had exhibited characteristic prostatic symptoms for from one to fifteen years. All of them had considerable residual urine; three of them complete retention, in one of whom it had existed for 15 years. Three patients presented a moderate enlargement of the prostate, combined with marked contracture of the neck of the bladder, their ages being sixty-five, seventy-two, and seventy-three years respectively. They had all complained of the characteristic symptoms of prostatism for a number of years. One patient had a median lobe, two patients bilateral enlargement with median growth; and six patients bilateral lobular enlargement.

In reviewing the results in the entire number of 45 cases, there are three recent cases still under treatment, and the outcome of operation can not be estimated, although they all promise well. There has been but one death directly associated with the operation; and this one, an old man with a fatty heart and generally septic, who died on the sixth day. One patient died seven weeks after the operation from renal insufficiency, he having had only one-half of one per cent. daily secretion of urea, or one-quarter of the normal output, before operation. From the fact that he lived five weeks in this condition, it does not seem that the operation precipitated the end. In another patient who died, the post mortem showed as the cause of death an enormous, old, pyonephrosis, with a pus sac as large as an infant's head, which was not recognized before operation on account of the symptoms having been entirely vesical. Another died without unfavorable symptoms connected with the seat of operation, but developed a general peritonitis from rupture of a duodenal ulcer, he having had intestinal symptoms for years previously. An exploratory operation revealed the condition and the post mortem confirmed it.

Of the remainder, this leaves 30 cases cured or materially improved, five partially improved, and three not improved two of which were tuberculous. All presented symptoms of more or less severe cystitis. Residual urine varied from three ounces to a pint in a large percentage of the cases. In only three cases of contracture was there none.

The results are measured by comparing the conditions before and after operation. In those cases which were recorded as materially improved or cured the symptoms of vesical irritability and the residual urine have disappeared or materially diminished, and the patients are generally satisfied with their condition. The catheter has been dispensed with in all but one case, and in this one there is evidence of returning voluntary urination.

As a result of experience in these 45 cases, I feel that the following conclusions are warranted:

That prostatotomy is less dangerous than prostatectomy; that it is the operation of choice in a large number of cases of prostatic obstruction, notably those of moderate glandular enlargement, orificial hypertrophy and contracture, in which the prime object is removal of the obstruction and depression of the bladder orifice; that galvano-caustic incisions, when combined with perineal cystotomy, accomplish satisfactorily the desired result, shorten the operation, and minimize its dangers.

#### SO-CALLED "STOMACH-ACHE."

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IN but few departments of human pathology is the physician so dependent on the patient's own history of his symptoms, as in the domain of diseases of the abdominal organs, if he desires to make an exact diagnosis and institute a rational line of treatment. While the oculist, the gynecologist, the dermatologist and the genito-urinary surgeon require only a few subjective statements from their patients and rely almost entirely on their own objective findings to locate the seat and nature of the disease, the diagnosis of chronic diseases of the viscera, as of those of the nervous system, requires thorough inquiry into the history and careful, critical weighing of the patient's statements. He who understands how to weed out the unimportant features from the complaints and stories of a given patient, and emphasize sufficiently the essentials, without falling into the errors of a "snap-diagnosis," will often find it easy to make a correct diagnosis from the history alone.

One symptom common to the most varied forms of internal diseases, and reappearing with almost malignant constancy is what is commonly called "stomach-ache" (*Magenkrampf*). Under this name the layman sums up all colicky pains which

\*This short paper by Dr. Cohnheim appeared in the *Deutsche-Medicinische Presse*, No. 12, Vol. 28. Dr. Cohnheim's position in Berlin, where he was for some time Boas' assistant, and now conducts a large clinic of his own, is such that anything from his pen bears the weight of careful thought as well as ripe experience.  
W. G. S.



make themselves felt in the epigastrium or its neighborhood, whether, as we shall see further on, they have their origin in the stomach, the colon, the liver, the heart, the uterus, the intercostal spaces, or elsewhere.

In discussing this symptom we shall for the present separate from the unpleasant sensations which may occur in the epigastrium, all such as partake of the character of pressure, or at least of painful pressure. Almost every sufferer from stomach trouble will complain of "stomach-ache." Our first task is to find out whether this "stomach-ache" represents real pain, or only an unpleasant sensation of pressure, tension, fulness, burning or eructation, especially after taking food. Many patients will admit at once that they have never had real pain, even when their complaints have been of from ten to twenty years' duration. None of these cases concern us, for they either belong under the head of nervous dyspepsia and atony of the stomach, or, if the unpleasant sensations are most pronounced after eating hard or heavy food such as black bread, potatoes, beef or pork, of gastritis.

A certain number of patients, when questioned about the nature of their pain, report as follows: The pains are burning, boring or cramp-like in character, with a feeling of contraction in the pit of the stomach. They commence either in the epigastrium, sometimes a little to one or the other side of the median line, but generally exactly in the median line, or they commence in the back. They may, however, start at the umbilicus, the lower end of the sternum, in the middle of the abdomen or in the right iliac region. From these starting points the pain may radiate in all directions—upward as far as the sternum, the shoulders and the intrascapular spaces, laterally to the arms and sides of the chest, and downward to the symphysis pubis. The intensity of the attacks may vary greatly, also their causes and the manner of their commencement, duration and termination. There are likewise great variations in the means used to successfully stop these attacks, be they home remedies or those prescribed by a physician. Lastly we find differences in the accompanying symptoms and in the relation of the attacks to the taking of food and to defecation.

We shall now see how it is possible by means of the above-mentioned points to determine in almost all cases the exact cause and location of the "stomach-ache" or gastralgia, without the absolute necessity of a physical examination or the use of the stomach-tube.

It is to-day accepted as practically certain, that the group of symptoms called "gastralgia" is caused by disease of the sympathetic plexus. Buch (*Archiv für Verdauungskrankheiten*, Bd. VII, Seite 555) has recently discussed these relations very clearly and thoroughly. He says that under normal conditions the sympathetic plexus is non-sensitive to pressure, but under pathological conditions only a slight irritation is needed to produce disagreeable sensations and ultimately the most severe gastralgia. At the same time the

wave length of the sensitive nerves of the sympathetic plexus in regard to appreciating pain, is decidedly shortened. Buch, therefore, makes the logical suggestion, that we call this group of symptoms "epigastralgia," in order thereby to emphasize the fact that the pain is felt in the epigastrium, without necessarily having its origin there. I should like to follow Buch's example, and henceforth speak only of epigastralgia.

In proceeding to the special consideration of so-called gastralgia, we notice that attacks of pain or painful contractions in the epigastrium are observed in the most widely separated affections, and without much discrimination are by the laity called "stomach-ache." Just here it may be of interest to enumerate all the possibilities, and then consider them individually in point of differential diagnosis and treatment. We have to consider:

1. *Heart*. Angina pectoris.
2. *Intercostal Spaces*. Neuralgia, herpes zoster.
3. *Stomach*. Spasm of cardiac orifice, ulcer with spasm of pylorus, stenosis of pylorus, gastric spasm, nervous gastralgia.
4. *Duodenum*. Ulcus duodenale.
5. *Liver*. Biliary colic, cholangitis.
6. *Pancreas*. Stones, hemorrhage.
7. *Intestines*. Colica mucosa, colica flatulenta, obstipatio spastica. Lead colic. Ileus. Hernia. Intestinal stones. Enteralgia (in hysteria and syphilis). Acute enteritis and perityphilitis. Embolus of the arteria mesenterica. Tapeworms. Foreign bodies.
8. *Uterus, Kidneys, Ureter, Bladder*. Formation of stones. Colics.
9. *Peritoneum*. Peritonitis.
10. *Spinal Cord*. Tabes dorsalis.

In all these affections the average patient will complain of "stomach-ache" or "cramps." In every case we must discover the cause of the gastralgia, that we may thereby prepare the way for rational treatment. In passing, I would call attention to the fact that in general practice the following three conditions are frequently mistaken for one another—spasm of pylorus after ulcer, cholelithiasis and intestinal colic.

1. *Angina Pectoris*.—Here the attacks of colic are entirely independent of eating. They begin more in the region of the heart and radiate thence to the epigastrium, the shoulders, the back and the arms, especially the left arm. The attacks occur periodically, each lasting from a few minutes to quarter of an hour, and they often recur at a particular hour of the day. The diagnosis is easy, especially when the possibility of an attack is borne in mind. Elderly patients with pronounced arteriosclerosis, smokers, and syphilitics are prone to this trouble. It is unnecessary here to discuss the pathology and therapy of angina pectoris.

2. *Intercostal Neuralgia*, after "taking cold" and before the eruptive period of herpes zoster. Here, too, the patient complains of "stomach-ache," which radiates sometimes only to the left and sometimes to both sides, encircling the lower

end of the thorax, and reaching even to the back. In these cases the pain may be very severe. It comes on in jerks like supra-orbital neuralgia, and is increased and even started by pressure on the intercostal nerves. With a little care the diagnosis is easy.

3. *Stomach*.—As spasm of the pylorus accompanying ulcer is by far the most frequent cause of gastralgia, I shall consider it more carefully. In this affection the attack of pain always stands in intimate relation to the act of digestion. After light fluid food, such as soups, tea and milk it is usually absent. In a given case it recurs always at the same interval after eating, in some cases this interval is one-half an hour to one hour, in others one and one-half to three hours, in still others as soon as the stomach is empty, *i.e.*, four to five hours after the principal meal of the day, namely from six to seven P.M. and between midnight and 3 A.M. In the large majority of cases we find the secretion of hydrochloric acid above normal. Some authors claim that this alone is sufficient to produce spasm of the pylorus, but that this is not the case and that we must seek another reason, is evident from the fact that in numerous cases of nervous superacidity and gastritis hyperacida, after abuse of alcohol and tobacco, pressure symptoms are present after eating, but not spasm. This other reason can only be an ulcer, erosion, or fissure of the pylorus itself, or in the pars pylorica of the duodenum. Ulcers situated in other parts of the stomach run their course either entirely without symptoms, until hemoptysis takes place, or cause at most a burning, gnawing or boring pain, but never a spasmodic one.

I am well aware of the fact that many authors regard these pains in the epigastrium occurring regularly two to three hours after the principal meals, cramp-like and radiating in all directions, as essentially an expression of hyperchlorhydria, which may lead to an ulcer. I am, however, of the opinion that the ulcer is always primary and the hyperchlorhydria secondary, as a result of congestion and stagnation in the stomach.

By no means every ulcer is accompanied by hyperchlorhydria; there are plenty of cases with regularly recurring gastralgia after meals without hypochlorhydria, which recover promptly under treatment for ulcer.

A characteristic point in this sort of gastralgia is its stopping after the use of such antacids as bicarbonate of soda and magnesia usta, as also after warm drinks or a bit of bread. The explanation of this is not difficult. The superfluous free hydrochloric acid is diluted or combined and its corrosive action on ulcer, erosion, or fissure of the pylorus is counteracted. Thus the pain disappears, only to return again when a fresh unneutralized amount of HCl is secreted.

These cases of ulcer of the pylorus with hyperchlorhydria, easily recognized clinically by spasms of the stomach occurring at regular intervals after eating, form a transition to cases of stenosis of the pylorus. This latter condition

may be a spastic one, or the result of scar tissue, both consequences of an ulcer, and sooner or later will lead to gastrectasia unless prevented by therapeutic measures.

Other forms of gastrectasia result from adhesions of the pylorus or pars pylorica with neighboring organs, or from compression from without. Thus it may be occasioned by gall-stones, tumors of the pancreas, peritoneal adhesions, etc. By these mechanical obstructions, the normal mobility of the pyloric end of the stomach is impaired and as this is the real motor force of the stomach, it follows that insufficiency, that is dilatation of the stomach, must result when the compensatory hypertrophy of muscle, in the course of time, has reached the limit of its capability to resist. In all cases of gastrectasia, the group of symptoms resulting in gastralgia appears when the stomach endeavors to force its contents through the narrowed passage into the gut. In the form of ectasis due to pyloric spasm, the stomach cramp occurs usually twice in the twenty-four hours, namely late in the afternoon and at night; in the other forms the cramp comes irregularly, when the overfull stomach tries to empty itself of its contents, and owing to the narrow pyloric orifice does so into the esophagus.

The treatment of all these forms of gastralgia is that of the underlying malady, that is as if there were an uncomplicated ulcer present. If at all possible, make use of Leube's rest-and-gruel cure, and finally send the patient to Carlsbad, which is the sovereign cure for this form of ulcer when combined with hyperchlorhydria and spasms of the pylorus. We can also make use of the Mühlbrunnen at home, using two cups in the morning and one in the afternoon.

Of medicines I commonly use extract of belladonna, which limits the secretions, combined with bismuth, magnesia or sodium bicarbonate.

In recent cases of ulcer chloroticum I use, according to Boas, a solution of silver nitrate 1 to 400 giving a tablespoonful in a wineglassful of distilled water three times a day, quarter of an hour before meals, and confining the diet to soups and purées. In very old cases of ulcer chloroticum, and in all cases of ulcers especially in men, the result of chronic pressure on the epigastrium, I give, according to Fleiner, 10 grains bismuth subnitrate suspended in a glassful of lukewarm water on an empty stomach one hour before breakfast.

As an after-cure, I let my patient drink every morning, warm vichy, using later an emulsion of sweet almonds. I have also used to advantage in such cases Bellocq and Bergmann's chewing gum in tablet form and temporarily  $\frac{1}{130}$  grain atropine tablets. In stubborn cases I have had good results from the use of oil, of which I have written elsewhere. In such cases I give a wineglassful of warm olive oil in the morning on an empty stomach, and repeat it at night if necessary. It can be administered either by mouth or by stomach-tube.

These methods of treating gastralgia due to



spasm of the pylorus have always worked well in my hands, except in cases of stenosis of the pylorus due to cicatrices or malignant growths. In such cases surgical interference is necessary, when lavage has failed.

Purely nervous cardialgia is very rare, as I wish, contrary to accepted views, especially to emphasize, and as is apparent from our discussion. It is only to be taken into consideration, after excluding gall-stones and intestinal colic, when it appears sporadically in nervously inclined patients after a psychic trauma. Usually it is accompanied by a dilatation of the stomach, because of the coexisting cardiospasm, which prevents the escape of gases. The attack ends with eructation. The treatment consists in hot compresses, hot valerian or peppermint tea and tincture of belladonna.

We may add to the affections simulating gastralgia, the symptoms of painful empty stomach, discovered by Boas. These painful pyloric contractions occur in nervous people whenever the stomach becomes empty, without producing any change in its chemistry. The pain is relieved by frequent small meals.

We find these painful contractions also occurring in gastritis atrophicans when the stomach becomes empty especially about 3 A.M.

In these cases the cause is a compensating hypertrophy of the pyloric muscles, the result of the effort necessary in constantly forcing coarse unchymified food into the duodenum, an effort greater than that required where the food is thoroughly chymified.

4. *Duodenum*.—Symptoms of gastralgia appear in cases of ulcer and stenosis of the duodenum exactly as in pyloric ulcer. As the treatment is the same in both sets of cases, a differential diagnosis is of little practical importance. We think of an ulcer or stenosis of the duodenum only, when during the course of an illness resembling ulcer of the stomach we notice icterus, or find bile constantly in the stomach contents.

5. *Liver*.—Laymen almost always mistake gall-stone colic for stomach-ache, and even physicians frequently do the same.

In such cases we must notice especially that the cramp occurs only sporadically, or periodically, and that after intervals of quiet of months or years, attacks may occur singly or in rapid succession. Rise of temperature and icterus accompanying such attacks are a pretty sure sign of biliary colic.

Inflammation of the gall-ducts without the passage of a stone is enough to produce colic. It happens frequently that gall-stones which have for years lain peacefully and quietly in the gall-bladder, are set in motion and produce colic through some sudden emotion such as anger. There is much truth in the old superstition that violent anger produces colic and jaundice. This is not the place to speak of the treatment of attacks of biliary colic.

As a further point in the differential diagnosis between biliary colic and ulcer with spasm of the

pylorus, it should be mentioned that pain on pressure is elicited in the former in the region of the gall-bladder, and on the right side posteriorly, while with the latter it is found in the median line in front and posteriorly to the left of the spine. Furthermore biliary colic is entirely independent of meal times, while spasm of pylorus stands in direct relation to eating.

These differential points should be sufficient to make the diagnosis easy.

6. *Pancreas*.—Attacks of gastralgia due to stones or hemorrhage in the pancreas are only then to be diagnosed when diabetes or fatty stools are present, otherwise we cannot differentiate between them and biliary colic. The possibility of this condition should however be kept in mind.

7. *Intestines*.—I need only briefly mention the affections which a layman might confound with stomach-ache such as perityphlitis, acute colic with diarrhea, and hernia. In addition to these is embolus of the intestinal arteries, which may produce severe gastralgia, and which is only diagnosed by the subsequent severe intestinal hemorrhages.

Lead colic also produces severe gastralgia, but this condition should not lead to mistakes unless it is entirely overlooked.

Of more importance are the colics accompanying obstipatio spastica, whether produced by gas or mucus, and respectively called colica mucosa and colica flatulenta. How often are these forms of colic confused with genuine gastralgia! Only the condition of the patient's stools saves us from errors. If these colicky attacks occur generally just before diarrheal movements, the diagnosis is easy. We must always inquire carefully about this, as patients are careless in taking notice themselves.

With colica flatulenta, pain ceases or is much lessened after passing wind, and also, as in cases of spasm of the pylorus due to hypersecretion, after warm drinks or hot compresses. Warmth internal or external resolves the spasms of the colon. Very rarely does this form of colic occur directly after meals, and then only in very sensitive patients. Usually such wind colic is entirely independent of eating, and thus easily diagnosed.

We have already noted the treatment of this wind colic. In addition we should forbid the use of cold drinks and food causing flatulence, such as fresh bread, cheese, cabbage, pears, cucumbers, and hard boiled eggs, and give carminatives and, as a matter of routine, belladonna.

Colica mucosa offers similar conditions and is an exacerbation of chronic colitis caused by constipation and abuse of cathartics extending over many years.

During attacks of colic, which are often called "stomach-ache," pieces of mucous membrane are passed, and these readily indicate the diagnosis. When these pieces of mucous membrane are absent, we may suspect a colica mucosa from the passage of irregular lumps of feces of small cali-



ber and surrounded by mucus, and, furthermore, from band-like contractions of the colon.

In treating these cases we have two problems, first to relieve the acute attack, which we do as in cases of wind colic, adding an enema of oil, if needed, and second, to control the chronic spastic obstipation. The diet should consist of food containing a moderate amount of cellulose and plenty of fruit juice and organic acids, such as buttermilk and kefir, and to this should be added several weeks' treatment by means of oil enemata and packs.

With a little thought colica mucosa is like the other colics easily differentiated from gastralgia.

The remaining intestinal affections are so rare that we need but mention some of them, such as acute ileus, strangulated hernia, especially in the epigastrium, and colic resulting from worms and foreign bodies, like pears and fruit seeds. It would carry us too far to discuss each one.

Of these the epigastric herniæ deserve some notice, as the pain they cause may resemble that of ulcer or gall-stone colic. We may avoid mistakes by noting first that they are usually visible and palpable in the linea alba, and second, that they are directly dependent upon relaxation of the recti muscles, and appear especially on bending over, lifting, coughing, sneezing and forcing at stool.

8. *Urogenital System.*—Owing to the reflex vomiting occurring so often in pain due to stones of the kidney, ureter and bladder and to dysmenorrhea, these conditions may be mistaken for gastralgia. A little attention to the source of such pain will exclude all but the right cause, and examination of the urogenital system will clear up the diagnosis.

9. *Peritoneum.*—For the sake of completeness I will merely mention the colic produced by inflammation of the peritoneum and accompanied by vomiting.

10. In conclusion, as is well known, we may have gastralgia accompany tabes dorsalis. Merely bearing in mind this possibility will often suggest the diagnosis.

The "crises gastriques et enteriques" occur

lowed only after two or three years by the complete picture. Usually, however, the complete picture is present at once.

Treatment is naturally most unsatisfactory and I confine myself to gastric lavage and giving morphine or oxalate of cerium.

This concludes my discussion of differential diagnosis. I do not add any histories, as every physician has had plenty of his own, though perhaps he has not always interpreted them rightly. I wish to emphasize once more the fact that there are three principal conditions to be considered in cases of gastralgia, or stomach cramp, namely, *spasm of the pylorus*, *biliary colic* and *true colic of the transverse colon*.

I trust I have proved it possible, even without the aid of the stomach tube, so to differentiate the various affections which can produce symptoms of gastralgia, that each may be treated clinically, in a rational manner.

The means of so doing, I repeat, are careful consideration of the history of each case, the time of occurrence of cardialgia, its duration, its relation to eating and defecation, its suppression by means of warmth, antacid remedies, etc., and the relation to it of secondary symptoms such as icterus, hematemesis, melena, and pains in certain regions.

#### RESECTION OF THE LEFT PELVIS FOR OSTEOSARCOMA.

BY M. STAMM, M.D.,  
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IN the MEDICAL NEWS of March 14, 1903, I see that Prof. Keen, of Philadelphia, performed an operation for the removal of an osteosarcoma of the pelvis, where it was mentioned that a similar attempt had never been made before in this country. The following case was operated on May 15, 1901, and would, therefore, precede Dr. Keen's case nearly two years.

F. S., of Monroeville, O., age twenty-five years, barkeeper, was treated for rheumatism for about one year. About four months ago he began to

FIG. 1.



Osteosarcoma of Pelvis.

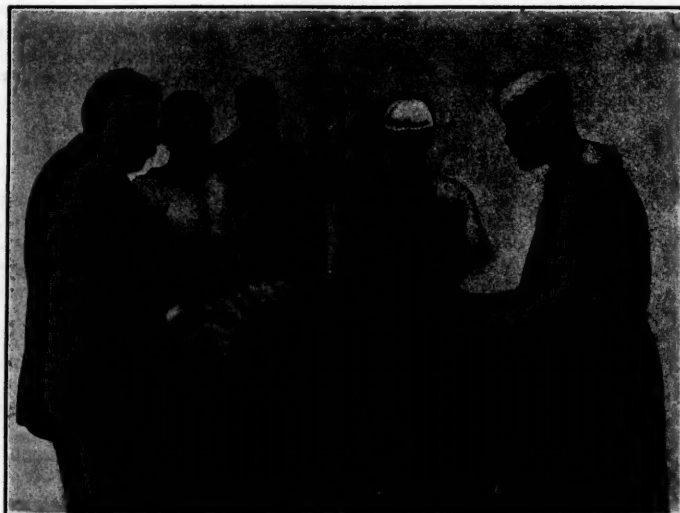
paroxysmally every few months or years. Every case of periodical cramp of the stomach accompanied by vomiting makes us suspect tabes, and frequently these crises are the first symptom, fol-

lowed by a swelling above his left hip-joint at the upper portion of the sacro-iliac joint. I saw him about the beginning of May, the tumor appeared to be semi-elastic, veins enlarged, the skin showed

marks of overdistention. The tumor was about the size of a child's head, reaching from the sacrum to the hip-joint. After patient had seen some other surgeons and heard their gloomy prognosis, and after I had explained the great danger of such a formidable operation he insisted upon prompt interference and was willing to take

anterior pole worked itself between the gluteus medius and gluteus minimus. Hemorrhage was not very profuse, but the shock very great and was very much increased by the chiseling. Saline injections, subcutaneous and intravenous, as well as strychnine and camphorated oil did not make any impression and patient died about five

FIG. 2.



Site of Operation.

any risk. The successful issue in one case operated upon by Prof. Kocher, in Bern, and one by Prof. Roux, in Lausanne, Switzerland, gave me some slight hope of a similar result, especially as patient seemed to be in fair health. The operation was undertaken on May 15, 1901, in the presence of Drs. McCormick and Phillips, of Fremont, Dr. Burt, of Norwalk, Drs. Kreider and Pritchard, of Monroeville, Dr. De la Barre, of Port Clinton, Dr. Heller, of Oak Harbor, and Durbin, of Woodville, O.

The incision was made from the sacro-iliac synchondrosis along the rim of the pelvis, down to the inferior iliac spine and to the hip-joint. The abdominal muscles were separated from the rim of the pelvis, the iliatus muscle was stripped off the ileum, the tensor vagina, sartorius and gluteus medius were also divided, Poupart's ligament separated and muscles pushed aside. Owing to the size of the tumor it was difficult to open the hip-joint and to remove the head of the femur with Gigli's saw. The joint proved to be healthy and could have been avoided if the tumor had not encroached upon its neighboring territory. The pelvis was divided about one inch in front of the hip-joint with saw and chisel through the ischium and horizontal ramus of the pubis. The chisel was used for the sacro-iliac synchondrosis and it showed that the tumor originated from its upper portion and was attached along the outside of the ileum to the periosteum, and its

hours after operation. From this case I have gained the impression that patients do not bear chiseling well and a saw driven by some motor would perhaps be the best way to separate the bones. I think that if the operation had been done in two sittings or if the resection of the hip-joint had been evaded the result might have been different.

#### THE PALLIATIVE TREATMENT OF FIBROID TUMORS OF THE UTERUS.\*

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THE palliative measures in fibroid tumors of the uterus are to be classed as follows, viz.: 1. Oophorectomy. 2. Cutting off of the blood supply by obliteration of the uterine arteries. 3. Dilatation of the cervix with curettage of the endometrium. 4. Electricity. 5. Medication; including the administration of animal extracts.

In the light of later developments of modern surgery palliative treatment of fibroid tumors of the uterus is to be limited to the following conditions, viz.: (1) When some constitutional or local condition forbids removal of the growth; (2) when the patient declines operation; (3) when the growth is small and is not producing

\* Read by request in the Section on Gynecology of the New York Academy of Medicine.

inconvenience, except when the abdomen is opened for some other purpose, in which case these growths should always be removed from the uterine wall when found whenever it is feasible; (4) in young women, when the possibility of removing the growth and leaving the uterus and ovaries behind cannot be definitely determined beforehand.

Oophorectomy as a palliative measure in these cases I have done only a few times and have limited it to women approaching the menopause who had small tumors that were producing intolerable symptoms, such as pain and hemorrhage, that resisted other measures including electricity and curettage. So far as I am now able to recall the results were fairly satisfactory and in two cases where the growths were small they disappeared.

In the class of tumors where this operation would be of benefit, viz., in small sessile or interstitial growths, it should be done as a matter of necessity rather than of choice when their removal is not practicable or the increased risk is not justifiable in individual cases.

Cystic and subperitoneal growths are not benefited by removal of the ovaries. The ovarian arteries should be obliterated when the ovaries are removed for this purpose.

The mortality of this operation is said by Roger Williams to be 10 per cent., but I fail to see how that is possible. The same author states also that it is of more benefit in young women with myomata of small size. I consider it positively unjustifiable in young women.

Cutting off the blood supply by obliteration of the uterine arteries has been productive of good when the growth is interstitial and it is small and is situated below the fundus. When done with the proper limitation it has in my hands produced marked reduction in the size of the tumor and in some instances complete disappearance; and there is always notable arrest of bleeding from the endometrium. To be effective, it is essential that the arteries on both sides should be permanently obliterated by applying two ligatures and dividing the vessels between them.

Dilatation of the cervix and curettage of the endometrium accomplishes a double purpose, viz.: First, and chiefly, arrest of hemorrhage, and, second, stimulation of the muscular fibers of the uterine wall to contraction whereby extrusion of the growth either towards the peritoneal side or into the cavity of the uterus is favored. Great care is necessary both in effecting dilatation and in using the curette in these cases lest rupture or laceration may result from the former or perforation through a very thin uterine wall may be caused by the latter. Gradual dilatation by means of sponge or laminaria tents is safer than rapid dilatation with the steel dilator and if the tent is protected by a rubber cover as I have directed elsewhere\* the risk of sepsis is completely obviated.

Curettage should be done only with the dull instrument or one with copper edge and it should be as large as the canal will comfortably accommodate to lessen the chance of perforation of the uterine wall when it is thin. Following curettage the cavity should be freely irrigated with hot water or salt solution to remove loosened membrane and clots, and afterward with a solution of iodine in hot water. By using the compound tincture of iodine a perfectly clear solution is obtained in which there is no precipitate of iodine. The strength of this solution may be from half an ounce to an ounce to the pint. Iodine in its full strength should not be applied to the endometrium.

Electricity has been much abused and much misused in these cases. It is of undoubted benefit when used properly in appropriate conditions. (1) It will nearly always relieve the pain to a very considerable extent, though sometimes owing to the situation of the growth it does not afford relief. (2) It will arrest the hemorrhage when it is possible to reach all parts of the cavity of the uterus for contact with the electrode. In some instances, however, it is necessary to precede the application by dilatation and curettage to bring about a more prompt and decided result. (3) It will relieve in a measure congestion of the uterus and diminish the blood supply to the growth. (4) It will in suitable cases bring about very considerable reduction in the size of the growth. (5) When the growth is a true myoma of moderate size it will sometimes eventually disappear under prolonged applications of electricity to the endometrium. (6) It will sometimes facilitate extrusion of the tumor and thus favor its enucleation. (7) It will sometimes cause breaking down of the intervening wall between the growth and cavity of the uterus and expulsion of the tumor from the uterus. When such result is produced great care is necessary to obviate sepsis.

Electricity is then useful in many cases for relieving the symptoms produced by fibroid tumors of the uterus, but in some of these conditions (notably in subperitoneal and submucous growths) it is powerless to accomplish any good and should not be used. If it is to be applied with the intention to reduce the size of the tumor its use should be limited to small interstitial growths that have not developed so as to rise above the umbilicus. In growths of larger size than this even if they are interstitial, it is of little or no material benefit though sometimes it does relieve the pain to a very considerable extent. I am obliged to admit that the results obtained by electricity in these cases is not always permanent. I believe that it is only possible to obtain decided results by making the applications to or through the endometrium and thus more directly to the growth proper. The galvanic is the most useful current and the only one that will effect decided reduction in the size of these tumors. The faradic current is useful sometimes for relieving pain, as is also the static induced current.

Medication will sometimes prove a valuable

\* "The Technic of Surgical Gynecology," p. 57, by the Author. International Journal of Surgery Co., New York, Publishers.



auxiliary to the palliative treatment of fibroids of the uterus. Ergot has been found useful in some instances. It acts, I think, by producing continuous contraction of the muscular wall surrounding the growth which causes diminution of the blood supply and favors extrusion of the mass.

The iodide and bromide of potassium are useful sedatives and afford much relief in some cases.

Arsenauro (bromide of gold and arsenic) exerts a marked effect in hemorrhagic cases. When given in full doses and continued persistently the bleeding is very materially lessened. It is also useful for counteracting the anemia caused by prolonged bleeding.

Extract of the thyroid and mammary glands are said to exert a decided action in these cases but my experience with them has been negative.

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## MEDICAL PROGRESS.

### MEDICINE.

#### Hematogenous Miliary Tuberculosis of the Lungs.

—It has generally been believed that miliary tuberculosis of a hematogenous origin, was due to the deposit of the tubercle bacilli in the smaller capillaries of the lung, from which the process extended. Ribbert lately suggested, however, that the bacilli found their way from the pulmonary capillaries into the lymph channels and becoming collected in the lymphatic nodules, brought on pathological changes in the neighborhood of the latter. Experimental proof of this view has now been furnished by the researches of K. SAWADA (*Arch. f. klin. Med.*, Vol. 76, No. 4), who used very virulent cultures of human and bovine tubercle bacilli for injection in rabbits. Microscopical sections of the lungs showed that in each case the resulting miliary tuberculosis had its origin in the lymph nodules. The bacilli circulating in the blood, unless they are clumped in large masses, can not be caught in the comparatively large alveolar capillaries, and only become imprisoned when they find their way into the much narrower capillaries of the lymphatic nodules. A marked difference was found in the pictures presented by the lungs of young and adult rabbits, the signs of pulmonary disease appearing somewhat earlier in the adult than in the younger animals. This point the author believes, may have some value in explaining why pulmonary tuberculosis is less frequent in young children than other forms of tubercular lesions. In man the lymphatic nodules are not fully developed until the fifth to the seventh year. If the pulmonary involvement dominates the clinical picture of a case in the first five or six years of life, it may be assumed, judging from the author's experiments, that the infection resulted from the penetration of numerous and very virulent bacilli into the pulmonary circulation.

**Influence of Dwellings on Tuberculous Disease.**—Marburg is a small city in Germany of about 18,000 inhabitants and serves as a good example of conditions existing in other cities of a similar size. A study of these conditions as regards their influence on tuberculous disease has been made by ROMBERG and HAEDICKE (*Arch. f. klin. Med.*, Vol. 76, No. 4). The proportion of the population suffering from pulmonary tuberculosis is 1.1 per cent., four-fifths of the deaths from the disease being found in the poorest quarter. Among the latter class, the number of phthisis cases was 4.7

per cent., whereas among the better situated class, the percentage was only 0.2 per cent. The distribution of the disease seemed also to be restricted to certain dwellings, 59.2 per cent. of the cases in the poorer quarters occurring in 33 per cent. of the houses of the lower class. It was found, however, that locality, mode of construction and the number of tenants had no apparent bearing on the number of cases of tuberculosis, nor did the latter appear to be influenced by the filth in the apartments. Direct infection seems to be the main factor in the spread of the disease. A single infection may not be followed by any pathological results, but the principal danger appears to lie in the continued association and contact with a phthisical subject amid filthy surroundings and who is careless regarding the disposition of his expectorations. This is the main reason why the disease is so often localized in particular dwellings and the fight against the disease must be conducted in the quarters of the poor, especial attention being paid to continued re-infection.

**Observations on the Blood in a Case of Extirpation of the Spleen.**—Some interesting observations have lately been made on the blood of a patient in whom the spleen was removed on account of rupture and laceration sustained by an accident, by R. STAEBELIN (*Archiv. f. klin. Med.*, Vol. 76, No. 4). He compares his case with the 21 others which have been reported in the literature, and finds a number of points of difference, especially in the relation of the spleen to the blood constituents. In the larger number of cases there was reported a swelling of the lymphatic glands and this symptom was particularly marked in the author's case. In the cases where no enlargement was reported, it is not unlikely that it may have been present, but situated otherwise than in the peripheral glands. Another point which the author notes was the liability to infection which the patient presented, after the spleen had been removed. For some months the patient also experienced severe pains and weakness in the extremities, both femur and tibia being particularly sensitive to pressure. This may be ascribed to disturbances in the marrow of the long bones, for it is well known that the latter and also the spleen are the depositories of the broken down red cells. The blood examinations showed that at first the multinuclear neutrophils were very much diminished, then increased perceptibly and finally sank to the normal numbers, this phenomenon corresponding, however, with the development and subsequent disappearance of an infectious process in the operative wound already noted. The lymphocytes, however, showed a marked increase which coincided with the swelling of the lymph glands and probably depended on a greater activity of the lymphatic apparatus during the presence of an infection. As far as the red cells are concerned, the spleen seems to have no effect whatever on their relative numbers. Its only influence is apparently on the lymphocytes. This increase may be explained by assuming that the spleen does not produce lymphocytes, but subserves some other function, which may be taken up by the lymphatic glands. This may be a production of or a change in some chemical body, or the absorption of the products of disintegrated blood. In this way the increase in the lymphocytes after splenectomy may be accounted for by the increased function of the lymphatic glands, the spleen not taking any part in the process. It seems, therefore, that the spleen has no function as a blood producing organ.

**Primary Cancer of the Pancreas.**—The principal interest of the case lies in the fact that notwithstanding the affection of the pancreas there was no glycosuria. MANOULOFF (*Pract. Vrach.*, No. 23, 1903) diagnosed the case with comparative ease, as it presented all the symptoms of a malignant growth. He explains the ab-

sence of glycosuria by the complete destruction of the hepatic tissue. The patient was admitted to the hospital with general weakness and abdominal pain. The skin and the visible mucous membranes were markedly icteric. The abdomen large ( $34\frac{3}{4}$  inches) and excessively tender; face and lower extremities edematous; marked arteriosclerosis (patient fifty years of age). The liver greatly enlarged, hard and very tender to touch. Annoying pruritus all over. Spleen enlarged. Nausea and constant pain in the region of the stomach; no vomiting. Urine contained some albumin, abundant biliary pigments, but no sugar. The feces colorless, with a strong odor, and a great quantity of fat corpuscles and undigested muscular fiber. Patient eats and drinks a great deal. After drawing off the ascites it became possible to detect in the linea alba under the left lobe of the liver a hard undulated swelling the size of a fist and hardly movable. The patient succumbed after nine months of suffering to extreme asthenia. Microscopically the pancreas was converted into a tumor with a strongly developed connective tissue stroma, containing in its fibers groups of parenchymatous elements of the new formation; these elements resembled polymorphous cylindrical epithelia surrounding cavities of various sizes, the whole looking much like a glandular swelling. Nothing remained of the pancreas. The liver was also greatly changed. It is of interest to note that while the head of the pancreas was attacked by the malignant growth, its body and tail underwent cystic degeneration, some of the cysts having reached a very large size. This combination of pathological processes in the pancreas has been observed quite frequently. Besides the liver the kidneys were also found to be the seat of a chronic interstitial nephritis, while the spleen showed marked hyperplasia due evidently to cirrhotic changes in the liver.

#### SURGERY.

**Resection of the Clavicle.**—Three cases of partial and total resection of the clavicle are reported by P. MAULAIRE (Trib. Méd., June 27, 1903), apropos of which he discusses the indications, technics and functional results of the operation. The indications for such a measure he holds to be comparatively rare; a partial resection having been performed in one of his cases for tuberculous osteitis and a second for comminuted fracture; a primary lymphosarcoma of the clavicle rendering extirpation of the bone necessary in a third. As to the technics of total extirpation, he describes two methods; one of which consists in disarticulation of the acromio-clavicular joint and severance of the attachments of the bone from without inward; in the second method the bone is resected at its mid point and the two fragments extirpated successively. The mortality of the operation is said to be practically nil; but in the extensive resections essential to the surgical treatment of neoplasms, the author emphasizes the necessity for the greatest care in approaching the internal extremity of the bone, as at this point entrance of air into a vein has been known to occur. Upon the integrity of the muscles inserted in the scapula, depends functional reestablishment after total extirpation; the former developing an active resistance which takes the place of the normal clavicular points of support; so that practically the normal range of movements is possible, as in partial or total congenital absence of the clavicle. A flattening of the shoulder is seen after such operations.

**Painful Affections of the Feet Among Trained Nurses.**—The liability of trained nurses to develop some static trouble with their feet during their term of hospital service is well known and is of considerable practical importance. R. W. LOVETT (Jour. Am. Med.

Ass'n, July 4, 1903) records the observations made during a period of eight years upon some 800 nurses in hospitals, all of which were examined on admission and suitable shoes or other treatment prescribed as demanded. The results obtained are very interesting. It was not possible to tell with certainty by examination whether or not the feet of an individual are likely to give trouble. The only reliable information was derived in these cases from imprints of the foot seen through glass, supported on a table over an aperture with a mirror underneath. A foot with a well distributed pressure area seems rather less likely to give trouble, than one resting on two islands. Other factors seem to be of little consequence, a flat foot may be perfectly serviceable as may also a severely pronated one, while an apparently well-balanced foot may become painful. The factors in causing the trouble among the nurses were to be sought rather in the general conditions than in any special conformation of the foot, following in many cases, illness and other conditions causing muscular debility. It occurred in most cases in from two to three months after admission and in the early spring, after the nurses had been indoors more and least often in the fall. The trouble was caused by a rolling in of the foot and a shifting inward of its weight bearing areas and not in any case observed by a breaking down or a lowering of the arch. The author believes that the use of a proper boot has done much to relieve the condition. The treatment consisted of the use of felt pads worn in the shoes during the day and the immersion of the feet at night in hot water followed by a cold shower and the application of a flannel bandage. In severer cases, a metal plate is worn in the shoe or a felt pad with adhesive straps which hold the foot in an inverted position. If no relief the patient is enjoined to keep off her feet and then begin to take long walks out of doors.

#### HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

**Regarding Hemolysis in Experimental Infections.**—To the numerous contributions on the subject of bacterial hemolysins which have lately appeared, is added another by O. v. WUNSCHHEIM (Münch. Med. Woch., June 30, 1903). His researches were concerned with the question whether during the course of an infectious disease, the pathogenic microorganisms could cause the formation of hemolytic substances in the animal body and under what conditions. A large number of the lower animals were inoculated with cultures of various pathogenic bacteria, mostly of anthrax. The observations were made on centrifuged specimens, the color of the supernatant serum being noted in comparison with the normal. This seemed much simpler than taking a numerical count of the destroyed red cells. In the anthrax infections a sudden and intense hemoglobinemia was observed and the author proposes calling the purplish serum, "serum purpureum," to distinguish it from the minor grades of hemoglobinemia which were also found in other experiments. The author believes that similar processes also take place in the bodies of human beings, but are not recognized. A mild degree of hemoglobinemia may take place during the course of an infectious disease, without the production of a hemoglobinuria, and not be detected for lack of practical means of testing for it. Experiments are now in progress, from observations made in typhoid and influenza, to determine under what conditions, hemoglobinemia in infectious diseases is a constant factor, and whether the methods practised by the author can be made of clinical and prognostic value.

**Bactericidal Action of the Radium Rays.**—A preliminary communication in this subject is published by



R. PFEIFFER AND E. FRIEDBERGER (Berl. klin. Woch., July 13, 1903). A small quantity of radium bromid enclosed in a suitable rubber capsule, was placed some 2 or 3 inches away from a gelatin culture plate containing a large number of typhoid and cholera colonies. The experiments were conducted in a darkened room. The results even after 24 hours' exposure were negative. The distance was then decreased to  $\frac{1}{2}$  of an inch, and in 48 hours' time an area of about  $\frac{3}{4}$  of an inch in diameter was observed, in which no further growth took place. To determine whether this may not have been due to some change produced in the culture medium by the action of the rays, the sterile area was again inoculated with a fresh typhoid culture. An abundant growth was seen in 20 hours. Similar results were also obtained with cultures of cholera and anthrax. Whether there is an absolute death of the organisms or only prolonged interference with their development is still an undecided matter, but the authors believe there is a favorable field afforded in the treatment, especially of infectious processes of the skin, such as lupus and others.

**Pathology of Latent Malarial Infection.**—By the latent is meant a malaria which is not manifested by any symptoms and in which an examination of the blood does not necessarily show the presence of the malarial parasites. Pathological changes in the organs of these cases are only found at autopsy after death from some other disease. C. F. CRAIG (Am. Med., July 25, 1903) reports a series of seven cases of this character, three tertian and four æstivo-autumnal. In all these latent infections the pathological lesions were chiefly confined to the spleen and the liver, whereas in the acute infections it is known that almost every organ of the body is involved. The changes in the spleen consisted chiefly in an engorgement of the splenic sinuses with red cells and leucocytes, the presence of infected red cells and of phagocytes and of melaniferous leucocytes, an increase in the cells of the splenic pulp with more or less degeneration and karyokinesis and pigmentation of the organ confined to the edges of the Malpighian corpuscles and the splenic sinuses and trabecule. In the liver the changes consisted in slight pigmentation, more or less venous congestion, and the presence of melaniferous leucocytes. The changes in the æstivo-autumnal form differed but slightly and chiefly in the character of the parasites present. The chief point of value is that the parasites were found to undergo their entire normal human life cycle within the spleen, without being detected in the peripheral circulation or causing any evident symptoms. This also bears out the old theory that the spleen is the seat of the malarial infection. In any one of these cases, puncture of the spleen would have resulted in a diagnosis, but the author is of the opinion that this procedure is too dangerous even in experienced hands and not to be advised as a routine measure or in cases such as these where no malarial symptoms are present.

**A Cavernous Tumor of the Spinal Cord.**—An instance of this hitherto unreported condition is published by R. HADLICH (Virchow's Arch., Vol. 172, No. 3), and its relations to the newer theories regarding the origin of cavernous tumors discussed. The specimen was secured from a patient who had died two days after Cesarean section had been performed on account of a narrow pelvis. At no time had there been any symptoms referable to the tumor which was as large as a pea and occupied a position on the dorsal aspect of the lumbar section. A cross section showed marked disturbances in the relations of the various parts, and in the region of the posterior horns, were numerous cavities of larger and smaller size, which apparently orig-

inated in the neighborhood of the posterior nerve roots and extended towards the center and the anterior horns. Most of these canals were found to contain blood and were lined by a single layer of endothelium. The only analogous cases are those of a cavernous tumor of the liver, of which numerous cases have been reported and theories as to their origin proposed. The author is unable to relate his own case to any of these and comes to no definite conclusions as to its etiology.

**Staining Elastic Fibres.**—A new method by which it is possible to stain both elastic fibres and fat at the same time, is proposed by B. FISCHER (Virchow's Arch., Vol. 172, No. 3). Such a procedure is of especial value in the examination of areas of fatty degeneration in vessels, kidneys, lungs, etc. To 74 cc. of fuchselin there is added 26 cc. of distilled water and the mixture brought to a boil. An excess of scarlet R. or sudan III is added and the mass allowed to cool. The section does not come in contact with ordinary alcohol in any form, which would dissolve out some of the fat, but the differentiation is accomplished with a hot saturated solution of scarlet R. or sudan III, in 70 per cent. alcohol. The latter solution does not affect the fat. The sections are first placed in the fuchselin mixture for one hour and then for fifteen minutes in the hot alcoholic scarlet or sudan solution. They are then washed in water and mounted in glycerin. It is not advisable as a rule to combine with this any nuclear stain on account of the multiplicity of colors, but if desired, the sections may be placed in acetic acid-methyl green solution and then differentiated in acidulated water. If care is taken, the nuclei appear of a delicate pale green color.

**The Formation of Gall-stones.**—With the endeavor to throw some light on the formation of gall-stones, V. HARLEY and W. BARRATT (Jour. of Physiol., June 15, 1903) observed the effect of introducing cholesterol calculi or fragments of calculi into the gall-bladder of dogs, both in health and in various morbid states. A series of five experiments all gave results similar to the following experiment: Two cholesterol fragments were introduced into the gall-bladder; the dog was killed 265 days later and necropsy performed. Both gall-stone fragments had disappeared; the gall-bladder, cystic duct and bile were all healthy in aspect. All the animals had remained in good health except one, which lost weight. In a second series of experiments, besides the calculi, dry pus or pus containing the *Bacillus coli* was introduced. The dogs remained in apparently perfect health, nevertheless the autopsy revealed cholecystitis and no dissolution of gall-stones occurred. In two experiments where only gall-stones were introduced, the latter were found unaltered, but cholecystitis was present and bacilli were found in the contents of the gall-bladder. It would therefore appear that when the gall-bladder is healthy the gall-stones seemed to disappear; on the other hand where cholecystitis was present the gall-stones remained unchanged. In the second series of cases the following changes were met with: The columnar epithelium of the mucous membrane of the gall-bladder was in every case covered with an amorphous or finely reticulated deposit, which could not be well stained with a fibrin stain nor with any of the other stains employed. Sometimes this deposit contained micro-organisms. The epithelial cells themselves were swollen and presented in the middle and upper part of their cytoplasm a clear vacuolated aspect. Lying among the epithelial cells, wandering cells could also be seen in sparse numbers. The connective tissue of the mucous coat sometimes appeared wide-meshed as if edematous and the capillaries of the mucous membrane were sometimes congested.



**OBSTETRICS AND GYNECOLOGY.**

**Maternal and Fetal Temperatures.**—The temperature of the child at birth is stated by most observers to be about the same as that of the mother, or a little higher. In 33 births S. G. CHAMPION (Brit. Jour. of Obstet., June, 1903) made examinations of both the fetal and maternal temperatures and came to the following conclusions: The temperature of the fetus in utero is higher than that of the mother. The exact amount of disparity it is impossible to determine, because during the process of expulsion of the child its temperature is already beginning to fall, the result of loss by heat radiation by the skin; immediately after birth the rectal temperature of the child still shows an average excess of 1.0° F. over that of the mother. The raised temperature never persists, but immediately and rapidly falls in the next fifteen to twenty minutes. The heat loss must have undoubtedly occurred by the skin and from the lungs. In no case was a bath administered to the child until after the observations were concluded.

**Injuries to the Child's Head During Delivery.**—In ordinary practice, depressions of the skull caused during parturition are not very common; as a rule, ROBERT JARDINE (Brit. Jour. of Obstet., June, 1903) found that they occurred in contracted pelvis, and are caused by pressure of the promontory, but they may occur in normal pelvis. Fracture may occur during delivery and yet there may be no depression evident at a casual examination. Besides injuries to the bones other serious injuries may arise, such as cortical or meningeal hemorrhage, traumatic keratitis, hemorrhage into the optic nerve, or anterior chamber of the eye. Subconjunctival hemorrhages are exceedingly common even in normal labors, but they are of no consequence. If cortical and meningeal hemorrhages do not cause death there is liability of permanent injury to the brain. Very little can be done in hemorrhages but to leave them to nature. If there is fracture, a trephine might be used, but in some cases where there is no fracture or depression it is difficult, and, at times, impossible, to locate the hemorrhage. In high forceps deliveries one blade of the instrument usually lies over or near one of the eyes, and occasionally the eye is more or less injured. In difficult deliveries the eye may be enucleated. Hemorrhage into the anterior chamber is occasionally seen. Retinal and hemorrhages into optic nerve may also occur. There may be a condition which Ernest W. Thomson calls "traumatic keratitis in the newborn." The author recalls one case of his own in which the child had been delivered with axis traction forceps and twenty-four hours later one cornea was more or less opaque.

**Uterine Pregnancy Following Operation for Extra-uterine Gestation.**—The fact that a woman who has recovered from an operation for extra-uterine pregnancy is liable to a similar accident is in the proportion of one to four, makes F. D. DONOGHUE (Am. Jour. of Obstet., July, 1903) report two cases of normal pregnancy following operation for extra-uterine gestation. One occurred after a vaginal operation, while the other had been preceded by an abdominal operation. The causes of extra-uterine gestation group themselves naturally into (1) cases in which the tube is ruptured or aborted, and (2) those cases diagnosed before rupture. The first group also divides into cases of pelvic or broad ligament hematocoele, and free hemorrhage into the abdominal cavity. If one is going to be conservative in operating upon extra-uterine pregnancy, that is, leave in the tubes and ovaries, with a view to subsequent normal pregnancy, the author believes that the patient or the patient's relatives should be consulted as to their wishes in the matter, provided they have been previously warned of the probability of the occurrence of a second

extra-uterine pregnancy. All such cases should be carefully watched after the operation. As with an increasing number of reported cases, normal pregnancy, it appears, is much more apt to occur than a repetition of an extra-uterine. Thus it would seem that one is justified in being conservative in operative procedure; but careful watch should be kept for the slightest deviation for a normal menstruation following the operation.

**Placenta Previa.**—Of all the complications that the obstetrician has to contend with there is none that is fraught with more danger or attended with greater anxiety than this condition, save, perhaps, eclampsia. If complications cause placenta previa to result in a high maternal mortality, JOHN F. MORAN (Am. Jour. of Obstet., July, 1903) finds that this is somewhere between 1 in 300 and 1 in 1,000. Placenta previa is seven times more frequent in multiparæ than in primiparæ. In 5,000 births at the Columbia Hospital, Washington, D. C., it has occurred 16 times or once in 312.5 births. Of these there was one maternal fatality and six infants were lost. The author has collected from literature 16 cases by 13 operators, where Cæsarean section has been performed for placenta previa. Five mothers died, or 31.5 per cent., and four infants were lost, or 25 per cent. Eleven children were delivered alive. Seven were done after the Sanger method; eight were of the Porro variety; one unknown. In lateral placenta previa there is rarely any difficulty, and labor usually terminates naturally. In the marginal, however, it becomes more dangerous and the central variety is always a matter of gravest concern. Hemorrhage and sepsis are the most important dangers in all cases of previa, and to these rupture of the uterus may be added as a third factor in accouchement forcé and more particularly where an attempt is made to deliver the child through an insufficiently dilated cervix. Regarding the absolute indications for Cæsarean section in placenta previa, statistics are not very encouraging, but usually it has been performed for repeated hemorrhages where and after other methods of intervention have failed. Whether these results will improve will depend upon a more thorough study of the cases during pregnancy, early recognition and prompt action while the patient is in good condition.

**Cervical Incisions in Labor.**—The use of this procedure is by no means a new obstetric finding, says R. W. HOLMES (Am. Jour. of Obstet., July, 1903), for a century or more, cutting operations upon unyielding cervixes have been fully recognized. It is applicable and indicated after effacement of the cervix has taken place. In contributory indications their use is a moot question; the judgment of the operator must decide in individual cases. For this reason incisions are especially applicable in primiparæ, and often contra-indicated in multiparæ. Manual dilation previous to incisions does not secure the best conditions for the incision. Incisions are potentially dangerous; the dangers comprise infection, hemorrhage, and extensive lacerations beyond the vaginal vault. The use of incisions demands an obstetric armamentarium, assistants, and a definite experience in obstetric procedures. The details of the technic may be modified to suit the taste of the operator. The minimum number of incisions should be made to meet the exigencies of the case. Oblique incisions can be proven to be more advantageous as regards the after-effects than the usual quadrant cuts. In the absence of hemorrhage or accessory lacerations, it is a moot question whether or not the incisions should be sewed up. Immediate delivery should follow the incisions in every instance.

**The Bossi Dilator.**—The principle claimed for this instrument is that a constant elastic pressure upon the cervix will dilate it evenly and safely, even though great

force is employed. The last model that Bossi has produced is simply a four-branched uterine dilator with a strong screw on the handle and an indicator to show the amount of dilatation. Numerous dilators have recently been put on the market, and they all embody the same principle as the dilator of Bossi, and vary only as to detail of mechanical construction. J. B. DE LEE (*Am. Jour. of Obstet.*, July, 1903) cites the following as the result of its application on three cases and a study of those to be found in the literature: (1) There is a small field of usefulness for the instrument in cases where rapid delivery by dilatation of the cervix is necessary after effacement. Before effacement, the colpeurynter should be used. It will be more successful in multiparae. (2) The instrument would be useful in dilating the cervix in those cases where manual dilatation would be successful. It possesses advantages over the hand in asepsis, and that it is not tiring, so that the operator may carry out the subsequent delivery with comfort. (3) The instrument is not safe, but requires careful and skilful watchfulness, and one must search for and be ready to repair, more or less extensive lacerations. These are greater in primiparae. (4) It should never be used in placenta previa. (5) It does not replace the colpeurynter, the use of the hand, or cervical incisions in all cases.

**Abdominal and Vaginal Caesarean Section.**—These most fortunately, are very rarely indicated for accouchement forcé. J. C. WEBSTER (*Am. Jour. Obstet.*, July, 1903) finds that it was Acconi in 1895, who first performed vaginal Caesarean section for the purpose of rapidly delivering the child, but that it was mainly due to Dührssen's advocacy that it has now begun to attract notice. When an eclamptic dies, the fetus being alive in utero, it is the duty of a physician who may be present, at the time of death, to advise immediate post-mortem Caesarean section. Bauer has recently reported eight cases in which four of the infants were saved. Within the last few years, abdominal Caesarean section has been carried out in placenta previa. It was first suggested by Lawson Tait. It must, indeed, be considered as rarely indicated in this condition, practically only when some condition exists which renders the other means or methods extremely hazardous or impossible. The writer has reported one case of a young girl of fourteen, in which excessive hemorrhage associated with a small vagina and a contracted pelvis necessitated the operation. Caesarean section has been rarely employed in cases where there had been a premature detachment of a normally situated placenta though certain authorities so advise its use. Vaginal Caesarean section is indicated in cases of accidental hemorrhages where the patient's condition is critical and where the cervix cannot be rapidly dilated by ordinary methods, provided a competent operator is at hand. It is indicated in affections of the heart, lungs, kidney, etc., where the mother is in danger and rapid delivery is indicated. In these various conditions, it is well to do vaginal section where the cervix does not admit of easy dilatation. The abdominal operation should not be employed save where there is no possibility of employing vaginal section in a satisfactory manner. It is indicated where the mother is in articulo mortis. The abdominal operation is by far the simplest and quickest in such cases, for it can be performed merely with a knife and without assistance. The vaginal operation has been advised but it would take longer and assistance would be required.

**Rupture of the Uterus During Labor.**—The patient was a VIII-para who had been 1½ days in labor when BARANOFF (*Prakt. Vrach.*, No. 24, 1903) was called to see her. The pains which had been quite strong during the first twenty-four hours suddenly

ceased after sharp, sudden pain in the lower part of the abdomen. This was accompanied by some hemorrhage. The patient was found sitting in bed, with pale face and cold extremities, complaining of very great fatigue; pulse 80, regular but weak. Examination revealed a rupture of the body just above the cervix uteri, the fetus in the abdominal cavity, which was also full of blood clots. As the conditions surrounding the patient were such as to preclude any possibility of a laparotomy, a careful extraction of the fetus, preceded by a cautiously performed version, through the formed rent was accomplished without any special difficulty except as to the extraction of the after-coming head with the extended arms. The fetus was dead. Many of the blood clots were extracted by the hand. The patient stood the operation well (no chloroform, simply hypodermic injection of morphine), and suffered from almost no hemorrhage. The placenta was removed without difficulty. The site of the rupture was tamponed for twenty-four hours. The course of recovery was quite uneventful, and in six weeks the woman was able to walk about. The author examined the patient six months after delivery and found her perfectly well; no pains in the lower part of the abdomen; uterus somewhat enlarged, but painless; the body of the uterus flexed laterally, the cervix to the left and high. The first menstruation took place six months after confinement, and is at present quite regular.

**Effects of Toxemia of Pregnancy upon the Cardiovascular System.**—Post-mortem lesions have been found in almost every organ in eclampsia. Thus punctate hemorrhages and areas of cellular necrosis found in the liver, the liver cell emboli, the thromboses, and emboli of giant cells, the dissolution of the blood and the destructive effects upon the blood vessel walls, the areas of gangrenous pneumonia found in the lungs, the hemorrhagic foci in the brain, and most constant of all lesions—the various pathological changes so frequently found in the kidneys—emphasize the fact, says RICHARD C. NORRIS (*Am. Jour. of Obstet.*, July, 1903), that eclampsia cannot be attributed to any cause manifesting its destructive force on any one organ, but on a number of organs, with toxemia as an important factor in the etiology of that disease. One of the most valuable signs of a threatening outburst of eclampsia is a change in the tension and rapidity of the pulse. It may be presumed that when toxins have accumulated in sufficient strength to produce their first effect, that of irritation, the vasoconstrictor nerves are stimulated and a high tension pulse follows. When the accumulated poisons are finally sufficient to overwhelm the patient, the pulse tension falls, and wholly disappears in a fatal case. It is a well-known fact that when pregnancy is complicated by organic heart disease, the appearance of toxemia renders the prognosis for the heart lesion more grave, since there are such widespread changes induced by toxins, it must not be expected that the heart muscles will escape. There is no doubt in the writer's mind but that some cases of sudden death after labor can be explained by unrecognized toxemia originating during pregnancy and suddenly declaring itself by what the author calls "cardiac eclampsia."

**Cysts of the Round Ligament.**—The origin of cysts in this locality is, according to A. BROTHERS (*Am. Jour. Obstet.*, July, 1903), ordinarily attributed to a persistence of the canal of Nuck. A serous cyst is formed by the gravitation of serum from the peritoneal cavity, through the open canal of Nuck in the direction of the labium majus. As the opening at the internal abdominal ring may be patent or shut off, two varieties of liquid accumulations may result—the one being a reducible, the other an isolated collection of liquid, i.e., a cyst. Weber suggested that as the gubernaculum



of Hunter, which becomes the round ligament in the female, is at first hollow, and there might be a persistence of this fetal condition favoring a pathological growth. The occasional association of these liquid collections in the inguinal region with hernia has been made use of to explain the pathogenesis of these cysts of the round ligament. While a few observations have been made to sustain this view, the majority of cases point in the other direction. So that the simultaneous existence of hernia must be regarded as an occasional coincidence. These cysts of the canal of Nuck usually occur during the child-bearing period, especially between the years of thirty and fifty. The sac is lined with a single layer of epithelium (pavement) and may sometimes show muscular fibers. The tumor develops in contact with the round ligament which is usually behind it. It may have a pedicle extending to the inguinal canal which may be patent and communicate with the peritoneal cavity. The diagnosis is sometimes quite difficult because, if the cyst be tense, it may closely simulate a solid tumor. It would probably be most often mistaken for a hernia. Tympanitic percussion rate and irreducibility, excepting in strangulated or incarcerated cases, will usually exclude this condition. The presence of fluctuation and dullness on percussion, with an absence of pain and interference with the normal function of the bowels ought to make the diagnosis fairly easy. With active inflammation going on the diagnosis is not so easy, as under such circumstances many of these cases have been mistaken for incarcerated hernia. The treatment of these cases formerly consisted of puncture with the subsequent injection of irritating chemicals, such as tincture of iodine. Inasmuch as there may be a communication with the abdominal cavity at the internal abdominal ring this method of treatment is obviously associated with grave risks. In our present state of surgical science it is far safer to dissect out the cyst and to properly tie off the pedicle whether open or closed.

**The Breasts and Genitalia.**—Though the breast, the characteristic organ of mammalian animals, is anatomically and developmentally an appendage of the skin, still it is reasonable to consider it as part of the genital organs. As generally known, the breasts undergo great changes during gestation, the greatest degree of development in the time subsequent to parturition. It is a noteworthy fact to which the attention of physicians has not as yet been drawn, and to the importance of which RALPH TEMESVARY (Brit. Jour. of Obstet., June, 1903) refers, that the death of the fetus during pregnancy without its expulsion from the uterus, such symptoms occur in the breasts as arise after delivery; the breasts become still more full and hard, and instead of colostrum they secrete real milk. These conditions rapidly recede and in a few days the breasts return to a state identical with that preceding gestation. From this change in the breasts, even Hippocrates inferred the death of the fetus in utero or impending miscarriage. Breast hypertrophy commences its evolution either at the period of puberty, simultaneously with the first menstruation, or during the first pregnancy; it is likewise in causal relation with the functions of the genital organs. Routh reports a case in a virgin where the breasts were hypertrophied as a result of masturbation. Regarding the new growths of the breasts, Lücke was the first who drew our attention to the fact that they sometimes occur during pregnancy, or if they have been present previously, then they commence to grow more rapidly. Cases have been observed in which women suffering from secondary amenorrhea had uterine hemorrhage in consequence of the irritation of the skin of the breasts. The sucking of the nipples during pregnancy may

lead to uterine contractions and even produce abortion. Scanzoni has brought this result about by applying to the nipples a cupping instrument supplied with a rubber tube for suction, twice or thrice daily for two to three hours. In women suckling their babies involution takes place much more rapidly than if the child is weaned at birth. Indeed, if the child is suckled too long, the uterus may take on an hyperinvolution, or "lactation atrophy." This condition usually passes off after the child is weaned. In new growths of the breasts, particularly in cancer, not infrequently a secondary amenorrhea ensues. There may also be interruption of pregnancy. As to the nervous connection, first of all it may be mentioned that the lacteal glands are supplied with three kinds of nerves: sensory, vasomotor and motor nerves; these originate partly in cerebrospinal centers. Thus the lacteal glands stand in connection with the genital organs supplied with nerves coming partly from the sympathetic nervous system and partly from the cerebrospinal centers. The experiments of Mironow and Ribbert prove also that, not even the blood vessels form an indispensable path of communication between the breasts and the female genitalia, although the connection itself exists. Another way remains, and that is the presence of some substance secreted by the ovaries, which substance circulating in the blood of the suckling or pregnant female gives origin under certain circumstances to the secretion of milk. The writer holds this theory and further, that the blood circulation, the quantity of the blood flowing to the breasts, being influenced by the nervous system, plays only a secondary rôle. In the reverse direction the stimulus is chiefly produced by the nervous system, and the blood circulation here plays a secondary part, in the form of a reflex hyperemia. In all these cases a certain outer stimulus, acting by way of the vasomotor nerves of the lacteal gland, causes milk secretion. Such stimuli are: attempts at suckling by infants, adults and animals; stimulating applications to the breasts, such as energetic counter-irritation, sinapisms, and vesicants.

**Congenital Absence of the Uterus and Atresia of the Vagina.**—In the case described by Dombrowsky (Prak. Vrtch, No. 23, 1903) there was no other abnormality. The mammary glands were of normal size and form, well developed with normally pigmented areolæ. Mons veneris and labia majora well covered with hair. But the labia minora hardly developed at all; from the middle of the vestibule they gradually merge into the mucous membrane at the introitus vaginæ. Clitoris and meatus urethræ normal. In attempting to introduce the finger it meets a tough muscular partition which forms as it were a sort of a pocket that contracts over the finger, but presents no opening anywhere. This evidently served in coitus the purpose of an artificial vagina. The examination per vaginam failed to detect anything like a uterus, while bimanually both hands meet without the intervention of any body. Per rectum author succeeded in palpating a small roundish body of irregular form, easily movable and not tender to pressure or manipulation. The woman was twenty-one years of age, and has never menstruated, before or after marriage. As coitus was normal and painless whatever surgical interference might be indicated was not called for.

## NEUROLOGY AND PSYCHIATRY.

**Two Cases of Sarcoma of the Spinal Cord.**—Tumors of the cord, until recently cavities inaccessible to treatment, have of late excited considerable interest. SENATOR (Prakt. Vrtch., No. 24, 1903) presents two highly instructive cases. In one case, that of a woman,



sixty-nine years of age, there was a history of ten months' duration, that began with a sensation of formication in the toes and pains in the feet; to this was later added inability to flex the knees, burning and pains in the soles which spread upward to the hip-joint. During the last six months patient lost all power of locomotion, suffered from convulsive twitching in the lower extremity, at times so pronounced and painful that the knees were forcibly flexed over the chest. There was also retention of urine. Patient lies recumbent on the back and is unable to move the lower extremities. Passive movements also hardly possible. Knee reflexes very much exaggerated. Babinski's sign present. Percussion of the muscles calls out painful twitchings. Stroking of the soles or legs is attended with clonic contractions of the lower extremities and of the abdominal muscles. Abdominal reflexes absent. Sensation lowered in the lower extremities. This condition grew gradually worse until the sensation of pain and temperature entirely disappeared, while that of touch disappeared over a still greater area extending upward. Late in the disease there occurred curvature of the spine at the third lumbar vertebra. In the course of the disease the body of the patient grew, as it were, shorter, the chest approached the pelvis. The abdominal muscles were almost in a continual state of contraction. Dyspnea and attacks of tightness in the chest, Cheyne-Stokes' respiration and marked slowness of the breath (8 per minute) supervened. Lumbar puncture during the early period of the disease brought forth 10 to 12 cc. of a limpid liquid with but little albumin. After the second puncture 5 c.c. of one-half-per-cent. solution of cocaine was introduced into the subdural space with remarkable improvement in the contractures and pain which lasted for three hours. Of the drugs employed scopolamine (hyoscine) seems to have given the best results. The autopsy revealed a tumor of the dura mater, which was macroscopically seen to be a sarcoma. The second patient was admitted to the hospital with pains in the back, inability to move the legs and complaining of tormenting thirst. The trouble began seven months before with pains in the back, between the scapulae, which would at times become so severe as to render her unable to work. Some four weeks before admission the soles began to swell; this was followed by swelling of the abdomen, while two weeks before patient became unable to move the left leg. There is no retention of either urine or feces. Patient recumbent on the back, indifferent, consciousness slightly impaired. Knee reflexes exaggerated, Babinski's sign present, and ankle clonus indistinct. It is rather difficult to pick up the patient, as the spinal column is quite stiff. Patient complains especially of pains in the legs. Autopsy (patient died on the third day after admission to the hospital) gave the following: the heart slightly hypertrophied, lungs somewhat adherent, the thyroid gland hypertrophied, full of cysts; the bladder distended, its mucous membrane covered with necrotic spots; ovaries thickened. The vessels of the brain markedly calcified, the spinal column much congested, in the region of the third and fourth thoracic vertebrae to the left there is seen a hard swelling, which is macroscopically a fibrosarcoma. The interesting feature of this case is the very rapid course of the disease. The first stage, what the author calls the stage of neuralgia, was quite short, while the stage of paraplegia that usually occupies months and years, was hardly extended over two weeks.

**Chorea in Pregnancy.**—It has often been observed that the movements of a choreic patient are closely akin to those normally employed in the expression of emotions. In a young child, before the highest centers have developed co-ordinating control, such movements are alone present; it is only by a process of education that

spontaneous movements of early infancy become coordinated, and thus capable of purposive action, says CECIL WALL (Brit. Jour. of Obstet., June, 1903). Rheumatism is undoubtedly, in the majority of cases, associated in some way with the chorea of childhood. So, too, during pregnancy, rheumatism plays an important part in the etiology of chorea. Buist found a personal history of rheumatism in 45 out of the 226 cases that he analyzed. The author's statistics show that at least 16 of 37 patients had previously suffered from some form of rheumatism. Twelve more had had chorea in childhood without other rheumatic manifestations. Antecedent chorea may suggest a rheumatic taint, but cannot be taken as conclusive evidence. In pregnancy, defective mental development seems to vie with rheumatism and previous chorea as one of the predisposing factors rendering a patient liable to an attack of chorea. The determining cause for chorea is not infrequently to be found in worry, for which the pregnancy is the chief cause; in case the patient is worried by the knowledge that her child is illegitimate. Fear of dystocia may be another inciting factor. Chorea in pregnancy seems to be determined by mental display, overstrain and shock. Secondly, the determining cause is only effectual when it acts upon a brain whose power of control is somewhat lowered by the pregnant state, and in addition is unstable in consequence of (1) antecedent chorea; (2) antecedent rheumatism or a similar debilitating condition; (3) a defect in development.

### PHYSIOLOGY.

**Influence of the Auricles on Cardiac Percussion.**—No systematic attempt has been made to ascertain the effect of the enlargement of one auricle upon the other or upon the heart as a whole, and the part they play in modifying the percussion boundaries has been generally lost sight of. With this point in view, D. R. PATTERSON (Bristol Med. Chir. Jour., June, 1903) has examined a large number of frozen sections in dogs and also a case of mitral disease in a human subject, and found that the auricles play a not unimportant part in modifying the relations of the heart. The investigations go to show that, while enlargement of the left auricle may take place to some extent downward, and possibly slightly upward, the chief increase is undoubtedly in an anteroposterior direction. This carries the heart forward and tends to influence the precordial area of dullness.

**The Gastric Secretion of the Newborn.**—The researches of O. COHNHEIM and F. SOETBEER (Hoppe-Seyler's Zeitsch. f. Physiol. Chemie, Vol. 37, Nos. 5 and 6) show that in dogs no more than one day old, there is an active gastric juice containing free hydrochloric acid, pepsin and rennin. This secretion is reflexly accelerated by the act of sucking, independent of the presence of milk in the stomach. The authors were unable to determine whether any gastric juice is present in the pup's stomach before it has begun to suck or not. There are two facts of marked significance connected with the above results, namely: (1) The gastric juice of the nursing contains at the very earliest stage free hydrochloric acid and not lactic acid, as has been maintained; (2) The nervous mechanism controlling the secretion of gastric juice is at the outset of life an inherited reflex, initiated by the act of sucking.

**Compressed Air and Respiration.**—As the results of a series of experiments on mice, L. HILL and J. J. R. MACLEOD (Jour. of Physiol., June 16, 1903) found that compressed air at a pressure of +4 atmospheres and upward markedly diminishes the CO<sub>2</sub> output, very greatly lessens the H<sub>2</sub>O output and increases the loss of body heat. The lessened CO<sub>2</sub> output is due to the

high partial pressure of oxygen, which arrests the oxidative processes in the tissues. A partial pressure of 100 per cent. atmosphere of oxygen has this effect and the effect increases with the partial pressure. The  $H_2O$  output is arrested because moist air when compressed becomes saturated with water vapor, compressed air delays evaporation by hindering the diffusion of water vapor and the escape of water vapor per liter during ventilation varies inversely as the pressure in the chamber. The loss in body heat is due to the increased conductivity of dry compressed air and of air saturated with water vapor. Wet air at one atmosphere and  $20^\circ C.$  increases tissue combustion in mice by increasing the loss of heat. The loss may be greater than the gain, so that the mice are cooled and may even die when long exposed to a current of wet air at temperatures below  $20^\circ C.$

**The Functional Changes of Mammalian Muscle in Asphyxia.**—This frequently investigated theme acquires new interest at the hands of C. LHOTAK v. LHOTA (Pflüger's Archiv f. Physiol., Vol. 94, Nos. 11 and 12). He found that poverty of oxygen rapidly lowers the working power of mammalian muscle, sometimes to the zero point. A similar diminution of irritability also occurs if the muscle during asphyxia is at rest. The reduction of working capacity is at any rate transitory, for a muscle is capable of performing a long series of contractions for a long time after the cessation of heart-action. It thus appears that ability to manifest energy recovers spontaneously to a certain degree, which recovery can be hastened by mechanical stimuli and particularly by a renewed supply of oxygenated blood. By the latter means the asphyxiated muscle can attain its original power of contractibility. In the muscles of weak, lean animals and even after repeated asphyxiation, there appears to be little or no diminution of functional capacity.

**The Intestinal Absorption of Iron.**—The rule that in the intestine compounds soluble in lipoids undergo intra-epithelial absorption, while compounds insoluble in lipoids undergo inter-epithelial absorption, finds, according to R. HÖBER (Pflüger's Archiv f. Physiol., Vol. 94, Nos. 5 and 6), an exception in the case of iron. Starting out with the supposition that it is not an iron salt that enters the intestine and undergoes absorption there, but some iron compound formed in the stomach by union with albumin or albuminous decomposition product, which compound is soluble in lipoids, and hence, on this hypothesis the presence of iron in the epithelial cells would be explained, the author tried to discover if any other metallic salts which react with albumin or its derivatives similarly to iron, are absorbed intra-epithelially. This was found not to be the case. Neither salts of silver, mercury, lead, bismuth, copper, cobalt, nickel, nor manganese can be discovered in the intestinal epithelial cells; they are evidently slowly absorbed inter-epithelially as salts insoluble in lipoids. It thus appears that there are special provisions in the intestine for the absorption of iron.

**Lactic Acid Fermentation.**—For a long time engaged in the inquiry as to the real extent to which fermentative processes may be distinct from the life of cells, R. O. HERZOR (Hoppe-Seyler's Zeitsch. f. Physiol. Chemie, Vol. 37, Nos. 5 and 6) at last succeeded in obtaining from a culture of lactic acid bacteria, a powder which is capable of converting milk sugar into lactic acid. The reaction is a very slow one and the quantity of lactic acid produced is so small that it can be detected only by microchemical means.

**The Mechanism of Phloridzin Glycosuria.**—In confirmation of the results of Zuntz, F. W. PAVY, T. G. BROWNE and R. L. SIAU (Jour. of Physiol., June 16, 1903) found that the injection of phloridzin into

the renal artery of one side produced glycosuria from the corresponding kidney prior to and to a greater extent than from the other. The perfusion of a surviving kidney with blood containing phloridzin, produced a diuresis accompanied with the presence in the urine of a notable amount of sugar, which is not to be accounted for by the disappearance of sugar that occurs from the blood. The intravenous injection of phloridzin produces glycosuria after ablation of the abdominal viscera (necessarily the kidneys excepted), and the elimination of sugar persists after the blood sugar has fallen to the lowest level that is noticed to occur. The sugar excreted under these circumstances may far exceed that existing in the circulating blood. The fall in sugar observed after simple ablation of the viscera undergoes no variation with the supplemented administration of phloridzin, notwithstanding the associated glycosuria. The hitherto proposed theories of phloridzin action fail to meet the requirements of the conditions existing. Under the view propounded by the authors, the glycosuria effected by phloridzin, is attributable to a special action exerted upon the cells of the renal tubules by which they acquire the power of producing sugar. They believe that under the influence of the presence of phloridzin, these cells exert a catabolic action upon something reaching them from the blood, resulting in the liberation of dextrose in a manner comparable to that by which lactose is set free by the cells of the mammary gland.

**The Rôle of the Liver and Spleen in the Destruction of Blood Corpuscles.**—A series of experiments were undertaken by W. BAIN (Jour. of Physiol., June 15, 1903), for the purpose of determining the changes which occur in the blood when it is passed repeatedly through the liver and through the spleen, and then of determining the influence of these organs upon the blood corpuscles. In a series of survival experiments on the liver and spleen, it is shown that these organs retain the power of destroying the red and white corpuscles of the blood. The action of the liver is mainly one upon the red corpuscles, those poor in hemoglobin being the ones chiefly affected, a fact proved by the increased hemoglobin value of the corpuscles after perfusion. Of the hemoglobin set free, most is retained by the liver and further destroyed, since the loosely combined iron of the liver, as determined by the ammonium sulphide test, is largely increased after perfusion; since the amount of iron in the dried liver rises from .14 per cent. to .26 per cent., and since the liver secretes a considerable quantity of bile rich in pigment during the course of the experiment. The main action of the spleen is upon the leucocytes, which are largely destroyed by it during the perfusion. The variety chiefly affected is the polymorphonuclear. The spleen in addition destroys a small percentage of red corpuscles, since their numbers are diminished, their hemoglobin value increased, and loosely combined iron is found in the perfused spleen in a greater amount, than in the normal spleen. In these survival experiments on the spleen, the nerves retain their excitability for a very considerable time after removal of the organ from the body.

#### EYE, EAR, NOSE AND THROAT.

**Hay Fever Toxin and Antitoxin.**—The interest which has attended the experiments of Dunbar of Hamburg with the toxins and the antitoxins of hay fever, has prompted investigations by other observers. Semon of Berlin has already corroborated Dunbar's results from the clinical standpoint and a further report has lately been published by P. McBRIDE (Edinb. Med. Jour., July, 1903). The experiments were conducted in six individuals, four of whom were subject to hay-fever.



Three of these gave very typical reactions, but one case was refractory. The latter had undoubted attacks of hay-fever, but also experienced similar attacks during the winter, of unknown origin. Although Dunbar has probably isolated both a toxin and antitoxin, the author believes that clinically there are numerous cases in which the theory that hay-fever is caused by the pollen of grasses only does not afford a satisfactory explanation. He has observed cases in which the attacks came on as the result of atmospheric conditions, such as the time of a hoar-frost and also mentions an instance where the attack came on the patient as he came in contact with horses independent of the season. The clinical use of the antitoxin is still sub judice.

**Otitis Media in Infancy.**—The frequency of this condition in infancy and its importance, in differential diagnosis is insisted on by J. L. MORSE (Jour. Am. Med. Asso., July 18, 1903). In all doubtful cases the ears should be thoroughly examined with a speculum. In many instances there is no sign of pain or many may have pain somewhere but show nothing by their actions by which the seat of the pain may be determined. Tenderness on pressure over the mastoid is also a very unreliable sign, as it is unusual in simple acute inflammation of the middle ear and most sick babies will cry if pressure is made on any part of their body. Acute otitis media is usually associated with fever, and reflex symptoms such as convulsions are not uncommon and may lead to a diagnosis of meningitis, pneumonia, gastritis, worms, dentition, etc. It is most commonly mistaken for pneumonia. A case so diagnosed and also another in which the symptoms seemed to point to cerebral trouble, are reported by the author. Acute secondary inflammations of the ear are more common than the primary ones, and occur as complications especially of diseases of the upper part of the respiratory tract. They are also common in diseases of malnutrition. Although the trouble may cause some symptoms, it may also go on perforation of the drum membrane without producing any symptoms whatever. The matter suggests the routine examination of the ears no matter what the disease.

**Treatment of Laryngeal Tuberculosis.**—Every method of treating this condition in order to be attended by favorable results must reach the deeply infiltrating lesions of the disease. In accomplishing this it is also desirable that it should be done without causing any extensive injury to the overlying mucous membrane, on account of the possibilities of a secondary infection. L. GRUNWALD (Münch. med. Woch., June 23, 1903) recommends for this purpose the employment of the galvano-puncture, which he applies in the following manner: after proper anesthetization of the larynx, a very fine platinum cautery point is applied to the area of infiltration, and when it becomes incandescent, it is gently pushed down into the tissue. When the infiltrated area rests on healthy tissue, the latter affords a feeling of resistance to the further progress of the cautery point, and the latter must not be pushed any further. If the infiltration lies free and unsupported, the penetration of the needle is indicated by a red glow in the trachea. As soon as the point can be freely moved about in the tissue, it may be withdrawn. The procedure usually lasts from 5-10 seconds. The reaction is remarkably slight. In a few cases a small degree of swelling was observed in the surrounding parts, but pain was rarely present. In a few severe cases, some dysphagia was noticed, and in others in which a previous dysphagia had been present, it immediately disappeared. The author also remarks that this procedure is not necessarily limited to tubercular infiltrates, he also employed it successfully in an advanced inflammatory hyperplasia.

## THERAPEUTICS.

**Local Treatment of Diphtheria with Antidiphtherin.**—The belief held by a certain number of clinicians that Loeffler's bacillus does not gain access to the blood or internal organs but remains localized at the site of the diphtheritic lesion, is shared by M. ARAMIAN (Jour. de Méd. de Paris, June 28, 1903). He therefore deems it more logical to attack the organism through local application rather than seek to neutralize its toxins through injection of serum. Excellent results are reported by the author from the use of a preparation to which he gives the name of antidiphtherin, the composition of which he intends shortly to present to the French Academy of Medicine. The remedy is applied with a swab three to six times daily; the tonsils, larynx, nasal fossæ, etc., being readily reached by this means. Of fifty-three cases so treated in his private practice, there were but two deaths; and these he attributes to complications which had developed prior to the application. For his method of treatment he claims absence of the dangers sometimes attending serum-treatment, facility of application, the possibility of preserving the preparation almost indefinitely, a recovery as rapid and probably more certain than with serum-treatment and early disappearance of the bacilli from the affected part; thus rendering prolonged isolation of the patient unnecessary, and greatly reducing the liability of contagion.

**Sciatica Cured by Local Injection of Antipyrin.**—Success is reported in the treatment of what the author calls primary sciatica—that is sciatica induced by causes acting directly upon the nerve, such as strain of the leg through excessive fatigue, cold, etc.—with hypodermatic injections of antipyrin in the course of the nerve, by P. ADOLPHO (Gazz. Osped., June 28, 1903). By means of a Pravaz's syringe provided with a long needle, 15 minims (one c.c.) of a solution containing  $1\frac{1}{4}$  drams (5 grams) of antipyrin and  $2\frac{1}{2}$  drams (10 grams) of water, was injected at a point midway and slightly above a line reaching from the tuberosity of the ischium to the great trochanter; the needle being thrust in deeply till the nerve was reached. These injections, given daily, were entirely painless; and at the end of a week, pain ceased entirely in one case, and after ten days a like relief was experienced in the second. Two months having passed without a recurrence of the trouble, the author feels justified in considering the cure a permanent one; and concludes that in rebellious cases of sciatica which, as in the two cases reported, resist other methods of treatment, injections of antipyrin should be tried.

**The Action of Adrenalin.**—As a result of a series of investigations and experiments on the action of adrenalin, SIMONOVICH (Roussky Vrach., No. 24, 1903), arrives at the following conclusions: (1) The drug, in the doses employed, exerts a general effect only when injected into the blood; (2) introduced per os in quantities far exceeding the maximum therapeutic doses (0.01) it fails to produce any subjective feeling; (3) the failure to exert a systemic action is due not so much to the action of the liver as to the slow absorption of the adrenalin, for injections into the intestinal veins produce an effect from comparatively small doses; (4) injuries of the gastro-intestinal mucous membrane do not increase the absorption of adrenalin; (5) the application to mucous membranes, e.g., to stop gastric hemorrhages, is not attended with any systemic toxic effect; (6) the maximum dose may be considerably increased if the drug be administered for its general effect, but in the local application the frequency of the application is more important than its dose; (7) glycosuria from adrenalin is evidently due to toxicity.

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## SUICIDE AND SYPHILIS.

ALMOST every physician in general practice has felt at some time the strain of terror over the possible effect of his words to some unfortunate youth. To cite an imaginary case which is by no means imaginary. A well-favored young man consults him to know whether he is in a position to announce his engagement, or to set the date of his marriage. The physician bound by a moral code tells him that he is syphilitic and cannot safely marry for several years. The youth shows shock, or horror, or despondency, and mutters that he might as well make an end of the whole thing at once. The physician cheers and encourages him, and thinks he has fortified his hopes. The youth departs pledging his one confidant to secrecy. A few days pass, his parents come. The son has disappeared. A last note mentions a necessary journey, but letters fail to bring a response. Can the physician give any clue? The parents are naturally in an agony of uncertainty, but does not the physician guarding the boy's secret, and dreading to read the morning papers suffer more than justice should permit? If, as is often the case, the journey is but the spasmodic effort of the young man to hide himself and his shame, time relieves the physician's anxiety as well as effects his patient's cure. But if it happens, as it

does too frequently to be ignored, that the boy ends his life with a revolver, or a gas-tube, the physician will always feel that he is responsible, although without blame, for the suicide.

Conan Doyle, in his collection of medical tales "Around the Red Lamp," discusses the situation. There the victim of hereditary syphilis tells the specialist who makes the diagnosis that he is on the eve of wedding a well-known society girl. The next morning the physician reads in the list of casualties that his patient was *accidentally* killed while crossing the crowded avenue the evening before.

The question of the physician's responsibility is a moral and not a legal one, and yet it is worthy of serious consideration. M. Alfred Fournier, in a recent communication to the *Bulletin de l'Academie de Médecine* (July, 1903) quotes a number of suicides which were traced either directly to the physician's diagnosis or to the patient's fears that such was the real nature of his disease. In presenting the subject from his own experience as well as collecting instances from his confreres he broadens the subject to a general discussion of Suicide in Syphilis. He mentions cases where, as a result of syphilis, the patient has developed mental trouble, and commits suicide because he has become insane or intensely nervous, and classes with these the patients with a neurotic tendency, as the result of inherited syphilis, who are naturally predisposed to suicide.

In a second class he cites instances of persons who have committed suicide because of the loathsome conditions of their disease, or because they feared such consequences. In a third class he cites the cases of those who, from honor, or shame, or shock that upsets the reason, or fear, commit suicide immediately on learning the physician's diagnosis, and in the fourth class he places those patients who, because of the social aspect of their disease, being about to be married, or to return to their homes, thought it the only honorable solution thus to end their lives.

Unquestionably many of the inexplicable cases of suicide are due to the greed of those sharks that advertise in the lay and religious press, who under the guise of regular physicians, diagnose and offer to cure (confidentially) diseases which the young as well as the married are ashamed to take to their regular family physician. To heighten the necessity for such treatment, these "Old Doctor Blanks" paint the most lurid horrors if treatment is not immediately begun.

Casting out, however, the methods of the un-

professional the question is, "How shall the physician best guard society from infection, and at the same time consider the individual's point of view."

Undoubtedly it is his duty to impress the many avenues of contagion upon his patient, as well as to forbid him to enter into any marriage relation, but at the same time it is his duty to arrive at the point slowly and to point out every encouraging feature.

M. Alfred Fournier, from his own experience, as well as from the experience of others, has come to the conclusion that it is unwise for the practitioner ever to make his diagnosis abruptly. No matter how sure he might be that a chancre was syphilitic, he should at first lead the patient to believe that an exact diagnosis could not be made at present, and not until after accustoming him by degrees to the possibility of the disease and to its most hopeful outcome should he by the third interview admit that the disease was syphilitic.

It is the first shock as a rule that counts with patients, and the susceptibility of the individual to his own moral sense is something that the physician cannot count upon, even though the patient be his friend.

#### RADIUM IN THERAPEUTICS.

IN our account of recent advances in the scientific knowledge of radio-active elements we suggested the possibility of the importance of these metals in therapeutics and especially in the treatment of malignant diseases, as soon as the expense of the present difficult methods of preparation had decreased to such an extent as to make a sufficient quantity of the metals available. It seems that our prophecy in the matter has proved true even before any great reduction in their price. The energy produced by the radio-activity of radium particularly is of so intense a character that even with the minute quantities of it which physicians are able to obtain some very interesting results have been secured. The cable reports of the past week show that in Vienna the metal radium has been used with excellent effect on a number of patients suffering from the most intractable forms of malignant disease. We sincerely hope that these preliminary reports will be confirmed by further details.

Patients have been presented before both the prominent medical societies of Vienna, the Society of Physicians and the Imperial Academy of Sciences in whom cancer has been cured, at least

for the time being, by exposure to the rays of radium.

As we suggested in our previous editorial the effect of radium upon the external layer of cells is such that after an exposure of a few hours a slough ensues and the resulting ulcer is so difficult to heal that it is very evident that the trophic nerves to the part have been interfered with. As a malignant neoplasm is after all an exhibition of hypertrophy of tissue under the influence of some irritant, be it a parasite or something else, or is due to a disturbance of the normal vital relations of cells to one another with the consequent production of a cell insurrection, as it were, it is evident that the disturbance of the trophism of the part may well prove the secret of the natural cancer cure. This is probably the way in which the mixed toxins act, when they produce their wonderful curative effect.

The first patient presented to the medical societies of Vienna was a man of sixty-one, who had suffered for many years from cancer of the lips, which in spite of numerous operations had not been eradicated, but had eventually invaded the palate. This invasion had become so extensive that during the early months of the scholastic year 1902 the surgeons had pronounced further surgical treatment as likely to prove fruitless. Under these circumstances the use of radium was suggested and a very minute portion of the bromide salt of radium was obtained. This is the purest form of the material as yet available, and it is said that only a very minute portion, a few milligrams, scarcely more than a tenth of a grain, were employed. The malignant condition gradually healed and for some time has ceased to give any manifestation of activity.

At the last meeting of the Imperial Academy of Sciences of Vienna to which this patient was presented, further reports of the use of radium in the treatment of malignant disease were made. In one case a cure seems to have been effected in that most obstinate of all forms of malignant neoplasm a melanosa. Of course it can be readily understood that such reports are only preliminary. Until at least three years have passed there must remain a question in the mind of serious physicians of any radical cure of cancer. The relief afforded by radium, however, seems to be exactly of the kind which is produced by the X-Rays, only the radio-active metal has the advantage of producing more intense and rapid effects and seems also to be more generally applicable than the X-Rays have proved to be. It is easy to



understand that the first reports are apt to be tinged by hyperenthusiasm, but a definite announcement that a new therapeutic agent is at hand is surely justified by what we know up to the present time.

From another important scientific body, the department of General Pathology in the Imperial Russian Institute of Experimental Medicine at St. Petersburg, there comes a further encouraging report with regard to radium in therapeutics. Dr. London, whose contributions to the discussion at the recent International Chemical Congress in Berlin attracted no little attention, has been defining the limits of the effect of radium upon the optic nerve by a series of very interesting observations. Ordinarily the crystalline lens, which by its concentrating action on light aids vision by means of light rays, rather prevents the action of radium rays upon the retina. This is not surprising, since many perfectly transparent substances act in just this same way, with regard to the X-Rays. On the other hand, where the lens is obscured or even where the optic nerve is degenerated, light impressions are produced by means of radium. In one case under Dr. London's observation an eleven-year-old boy, who had been blind from the end of his first year, as the result of atrophy of the optic nerve, has learned to recognize letters traced on screens with radium and to put together the letters thus formed into words.

It seems clear then that we are on the threshold of a new and perhaps far-reaching advance in therapeutics. It will not be long before other reports will bring confirmation of at least some of these results.

#### THE CASE OF BUBONIC PLAGUE IN BERLIN.

As the details of Dr. Milan Sachs' death while at work on the bacteriology of the bubonic plague reach us, some interesting facts are brought prominently to our attention.

Our readers undoubtedly remember the death, in 1898, of Dr. Müller at Vienna, who fell a victim to "laboratory" plague, after having spent considerable time in India where he studied the disease through daily contact with pest-stricken patients. So profound was the impression produced by this tragic death that the Austrian authorities forbade henceforth any experimentation on the plague bacillus within the domains of the kingdom. Dr. Sachs was commissioned, by the same Austrian Government, to conduct his investigations at the Koch Institute in Berlin.

It appears now that this ambitious and highly gifted young scientist, while filling his Pravaz syringe with pus from an infected guinea pig for the purpose of transferring it to the culture medium for colonization, had the misfortune of admitting into it a few air bubbles, and in forcing the pus out a drop of it sputtered over him, and thus became the starting point of infection.

The disease manifested itself on the fifth day, examination eliciting an ordinary pharyngeal congestion, a few swollen glands, slight apical dulness of the lungs and a few moist râles. However the marked feature of the case was the striking disproportion between the slight local symptoms and the grave general condition of the patient, as manifested by a high temperature, extreme prostration, etc. Unfortunately for the patient, through faulty arrangement, he was not conveyed at once to an isolation hospital, and when finally transferred there was in an unconscious condition. Meanwhile the diagnosis, both clinical and bacteriological, dissipated whatever doubt had been entertained as to the character of the affection (the pneumonic form of the disease is not at all typical of plague, and may be mistaken for bronchitis, broncho-pneumonia or croupous pneumonia), but by this time the unfortunate sufferer was beyond human help. The autopsy showed those of typical when the man also those of pulmonary tuberculosis. Of those who came in contact with the deceased, a hospital orderly suffered a mild attack of the disease evidently modified by the injection of the prophylactic anti-bubonic serum. The physicians and other attendants on the case received similar injections, while strict measures for isolation and immunization were adopted toward all who came in any relation with the case.

The question of following Austria's example by prohibiting any laboratory experiments and study on the plague bacillus in Germany was agitated in the lay as well as in the medical circles, but the prevailing opinion was in favor of continuing this most valuable laboratory work. The biology of the plague bacillus is as yet but little known, and the problems of immunity, and the production of a sufficiently strong anti-plague serum require a great deal of earnest study. The rarity of the disease precludes any possibility on the part of the average physician to diagnose its early stages, and laboratories where trained diagnosticians may pursue their studies are of great importance, especially for seaports, which are most of all liable to the dangers of infectious diseases.

As regards Dr. Sachs' case, it must be recognized that his general vitality was lowered by tuberculosis, and his resisting powers to infection accordingly reduced. A suggestion was made that in the future an applicant's physical fitness for laboratory work should be looked into with as much care as his scientific attainments, and while in the laboratory an examination of his physical state be made daily.

What is most instructive in the case for us, in view of the recent occurrences at San Francisco, is the remarkable attitude of the public in Berlin toward the whole affair, namely the entire absence of any panicky feeling to the population. This was principally due to two factors: the wide publicity, absolutely without any taint of sensationalism, given to it by the press, and the implicit confidence in the sanitary measures undertaken and carried out in a fearless and decisive manner by the authorities. The detailed daily reports on the doings of the sanitary board have more than anything else served to allay whatever apprehension might have been felt by the people. The results thus far show this to be the safest as well as the most rational method to be pursued by health boards in similar emergencies, and the conduct of the Berlin authorities will serve, let us hope, as an example to be followed by others.

## ECHOES AND NEWS.

### NEW YORK.

**Honor to Dr. G. R. Butler.**—Dr. Glentworth R. Butler, of Brooklyn, has been elected a life fellow of the Society of Science, Letters and Art of London.

**New Dean at Long Island College Hospital.**—Dr. J. D. Rushmore has been elected Dean of the Faculty of the Long Island College Hospital, in place of Dr. J. H. Raymond, resigned. Dr. Raymond was elected to succeed the late Dr. J. S. Wight.

**New Dispensary for Mt. Sinai Hospital.**—The Association of the Mt. Sinai Hospital has just purchased property in Pine street on which to locate a new dispensary.

**A New Possibility for Blackmail.**—A bill was signed by Governor Odell some time ago making it a misdemeanor to distribute patent medicines so that children may get at them. It should be borne in mind by physicians that after this they may be blackmailed by some enterprising crooks if they neglect to empty out all patent medicines preparatory to throwing them in the waste basket. Ostensibly the bill is to have for its purpose the protection of the children of ragpickers, etc., who, tumbling over summer ashbarrels, find boxes and bottles of death-dealing drugs within them. Tempted by the seductive colors and tastes, they go to their doom unmindful of the dangers lurking in the patent medicines. Still another avenue to blackmail the physician seems to have been opened and we counsel caution.

**Dr. Lederle in Favor of Abolishing River Baths.**—President Lederle of the Department of Health does

not regard with favor the free municipal baths along the river fronts. He regards them as the primary cause of a certain amount of infectious disease among those who frequent them, and as dangerous to the general health of the city. Since the hot months began he has had a number of the bath-houses moved from their anchorages because of polluted water or other good reasons. In some cases it has been found necessary to put two houses at the same anchorage for lack of suitable locations. The question of getting rid of the river front baths and substituting plunges and shower baths of pure clean water is now being considered by the Health Department. Commenting on the subject to-day, Dr. Lederle said: "The floating baths along the river front, which are necessarily located in more or less sewer-polluted water, are probably the primary cause of a certain amount of infectious disease among those who frequent them. Thousands of persons patronize them during the summer months, but they do this rather for recreation than for cleansing purposes. During their baths they run the risk of taking in through the skin or inhaling or swallowing germs of infection of various diseases, such as typhoid fever, diarrheal diseases, consumption, and through contact chiefly, acute conjunctivitis (pink eye), and certain skin diseases. The average citizen has no idea of the enormous quantity of sewage which is dumped every day into the rivers which border this city. The sewers discharge at the bulkheads and under piers at the ends of streets, and the sewage is frequently retained for long periods by eddying tides, after which it may be carried to sea by the ebb, or may have time to settle into the slime of the river bed. With a constant flow of sewage, the marginal water is never uncontaminated, and therefore it is impossible to keep the water in floating baths other than unsanitary, if not positively dangerous. It is accepted as certain that more or less disease is yearly transmitted as a result of the condition of these baths, and their use has only been permitted and not advised by the Health Department during the summer season. In consenting reluctantly to the continuance of baths along the river front, the Health Department had in view the needs of the poor people for cooling and recreation during the heated summer, and there was, of course, the prospect that before another year sufficient provision would have been made by the city for free public baths in the crowded sections, where hot and cold fresh water would be provided, and the needs of the inhabitants for bathing met in that way. It is a matter of great satisfaction to learn that the city is proceeding with the construction of such baths, appropriations for which the Health Department has frequently urged upon the Board of Estimate and Apportionment. When enough of these baths have been provided, much will have been done in the way of prevention, through personal cleanliness, of the infectious diseases so frequently occurring among those whose homes lack proper bathing facilities. I venture to say that there is no greater public need in this city to-day than an adequate number of free baths."

**Unity of the Medical Profession.**—Dr. A. T. Bristow, President of the State Medical Society, said the following, among other things, at a recent address given before the Associated Physicians of Long Island:

"One of the most important things for the medical profession to-day is unity. Unfortunately, as you know, dissensions have existed in our ranks in this State for many years. Originating in a ques-



tion of principle, the strife has been correspondingly bitter. We wage war in behalf of a neighboring island, and victor and vanquished soon forget the brief animosities engendered, but it has taken decades to efface the recollections of the wars of religion. A battle for principle has many resemblances to the religious war. Such has been the battle of the code and each side has striven for the right according to the different points of view of the contestants. When I was elected President of the State Society last winter, the prospects of unity seemed remote. The question of the code was involved in much obscurity, and no one seemed to know just what its position was. Moreover, the State Association insisted as a *sine qua non* to union that the State Society should apply for a new charter together with the Association. This seemed to me the most insuperable barrier to union, for the State Society prized its old charter, now nearly one hundred years old, and refused to do anything that would cause it to lapse. This was a question of sentiment, to be sure, but let me remind you that many of the things that we hold most dear are matters of sentiment, that is to say, affairs of the heart rather than of the intellect. Patriotism is a sentiment, so is the affection of parents and children, and so is religion in so far as it concerns the heart rather than the head. Our most precious possessions are thus matters of sentiment, so it was not strange that the State Society should be unwilling to allow its ancient charter to lapse. We are but a young country. We have few associations with a remote past, and those that we have we should cherish. I do not believe that the Association appreciated this feeling, nor, perhaps, foresaw it. On the other hand, it seems to me a perfectly natural and proper feeling on the part of the Association that the members should wish for some legal recognition of the reunion. Otherwise, it would be necessary for them to abandon their organization and join the State Society as individuals, something, in my opinion, that the State Society will by no means expect. Inasmuch as both parties to the dispute of thirty years ago contended for principle as each saw it, neither side should now be penalized for the contention which is a thing of the past and feelings of mutual concession and toleration should prevail. All ought to try to assist those who are working for unity and not be on the lookout for unreasonable objections, with intent to hinder. It has seemed to me that it might be possible to draw up an act which should preserve the old charter of the State Society and add to this the desirable features of the Association charter and thus comply with the wishes of that body that some legal recognition should be taken of the new order of things. In this way neither organization would perish, but the two bodies would simply merge. Unification would, in this manner, be accomplished without loss of dignity on either side and the reorganization would take place as it ought, in a manner honorable to both the subscribing parties, and with undue advantage to neither. If the matter of the charter can be arranged on these lines, as I am sure it can, then there is nothing whatever to keep us apart. The code question has been forever settled by the liberal and progressive spirit shown by the American Medical Association and the profession of this State will be much to blame if it allow ancient prejudice or revived animosities to stand in the way of unity. It will not be long before this whole question will come up before the rank and file of both societies, and it will then become the duty of every man to see to it that nothing but matters of principle shall allow this

breach in our ranks to continue. No such question exists. Every one recognizes that. All men say that we ought to unite. Let me then urge on every one here that it is an individual duty which will soon confront us. If you wish unity you can have it for it will be a question of the ballot. If you do not get it, do not blame the conference committee, nor the officers of the two societies. Blame yourselves, for there the responsibility must finally fall."

**Duty of Health Boards to Smallpox Patients.**—It is the undoubted duty of a town Board of Health, says the Fourth Appellate Division, by Presiding Justice Adams, in the case of Garra K. Lester against Joseph H. Eno and others, to take immediate and efficient steps, when smallpox develops within its jurisdiction, not only to furnish care and attendance to persons afflicted with the disease, but to protect, as far as possible, the residents of the town from the danger to which they are exposed by reason of its contagious and malignant character. To this end the Board of Health is authorized to incur any reasonable expense, and the expense thus incurred becomes a charge upon the town. The court therefore held that where the Health Officer of a town, acting under the authority of the town Board of Health, orally employs a physician to treat and care for all patients in the town who were then, or might thereafter be, afflicted with smallpox, assuring the physician that he would be well paid for his services, the town is liable to the doctor for the reasonable value of the services rendered by him.

#### PHILADELPHIA.

**Increase in Typhoid and Smallpox.**—The cases of typhoid fever for the week ending August 1st numbered 109 as compared with 65 for the previous week. During the same period the new cases of smallpox were 29 as compared with 11 for the previous week. The mortality from the latter disease was only three, as against 11 the preceding week. One case of black smallpox in Port Richmond caused the vaccine corps to work in that neighborhood all day on Sunday. The death rate of infants shows a gratifying decrease, the deaths being the least of any week since the summer began.

**Phipps Institute Asks for Charter.**—The Phipps Institute for the Cure and Prevention of Tuberculosis has applied to Common Pleas Court for a charter. The work of the institute has grown to such proportions that the managers decided that a charter was necessary to enable the work properly to be carried out.

**Typhoid in Pittsburg.**—The epidemic of typhoid fever in Pittsburg still continues. During the six days ending August 1st there were reported 102 new cases of the disease, almost as many as during the preceding week. The city water supply is supposed to be the source of the disease.

**Result of State Board Examination.**—Of the 392 applicants for authority to practice medicine in the State of Pennsylvania, who were recently examined in this city and Pittsburg by the State Board of Medical Examiners, 339 were successful. Fifty failed to obtain the necessary 75 per cent. average; one was expelled for cheating and two withdrew because of illness.

**Pennsylvania Hospital.**—A committee of former resident physicians of the Pennsylvania hospital, consisting of Drs. James C. Wilson, Frank Woodbury and T. H. Andrews, has authorized the painting of a portrait of the late Dr. Thomas G. Morton. It will be a three-quarter length picture and is to be completed in November. At that time the picture

will be publicly presented to the hospital and hung among other portraits of those who have been honored in the medical profession.

**New Hospital to be Erected.**—It is stated that a new hospital, to be known as the Union Mission Hospital, is to be built by the John B. Stetson Company in Fourth street, below Montgomery avenue. The building is to be a fire-proof brick structure, three stories high and 65 by 102 feet in size. A roof garden will surmount the building.

**Deaths from Adulterated Milk.**—Two deaths at Johnstown, Pennsylvania, apparently traceable to the use of injurious drugs to preserve milk, have prompted State Dairy and Food Commissioner Warren to inaugurate a general movement against those who sell adulterated milk. Of 1,000 samples obtained in the Eastern and Western parts of the State, 75 per cent. contained formaldehyde or other similar fluid. A State laboratory for the examination of foodstuffs is soon to be installed in Harrisburg.

#### CHICAGO.

**Licenses for Infant Nurseries.**—So far the city clerk has issued two licenses and permits to conduct infant nurseries in the city.

**Endowment of Free Beds in Hospitals.**—By the will of the late Horace P. Taylor, St. Luke's and the Chicago Baptist Hospitals each receive \$9,400 for the endowment of free beds.

**Injunction Secured by Dr. Orsinger.**—Dr. Frederick L. Orsinger has secured an injunction restraining the State Board of Health, Justice Chott, and his constable from causing his imprisonment or enforcing a judgment of \$100 and costs secured against him for violation of the medical laws.

**Diphtheria.**—Diphtheria is still prevalent, and the weekly number of deaths remains higher than usual for the season, but not to an extent warranting certain sensational statements recently published.

**Low Death Rate Among Aged.**—A phenomenally small proportion of deaths among the aged was one of the noteworthy features of a remarkably low July death rate for the week ending July 25th. There were only 55 deaths among those over sixty years of age reported out of the total, 513 at all ages, while the rate for the total—14.19 per thousand—is the lowest ever recorded for any July week in Chicago.

#### GENERAL.

**In Honor of the Late Major Walter Reed, M.D.**—A meeting will be held at the Hotel Louisburg in Bar Harbor, Maine, on the morning of Saturday, August 15, 1903, at eleven o'clock, to confer with respect to a memorial in honor of the late Major Walter Reed, M.D., U. S. A., to whom the world is indebted for most important services in the investigation and the suppression of yellow fever. All of our readers are respectfully invited to be present. Several committees in different parts of the country have already been appointed, and the object of this conference is to secure unanimity of purpose, and concerted action. Addresses may be expected from gentlemen who are well acquainted with all the facts. In behalf of many friends of Dr. Reed,

DANIEL C. GILMAN,

Chairman of a Committee Appointed by the American Association for the Advancement of Science.

S. WEIR MITCHELL,

EDWARD G. JANEWAY,

WILLIAM H. WELCH,

CHRISTIAN A. HERTER.

**Mortality in European Armies.**—Official figures show that during the years 1888 to 1900 the mortality in the French army was more than double that in the German army.

**Tuberculosis in Europe.**—An official health report from Berlin states that in a million inhabitants, Russia has 4,000 tuberculous subjects; France and Germany 3,000 and England, Belgium and Italy 1,000.

**Pathogenesis of Tuberculosis in the Sixteenth Century.**—An Italian work, in which the author gives expression to his ideas as to the true method of propagation of tuberculosis, has recently come to light. This book is said to have been published in Venice in the year 1520, and was announced as "A new work entitled 'Why,' a useful volume for ascertaining the reason of many things." In this work the author makes the following statement: "From the sputum of the phthisical patient or from his mouth a fetid vapor arises, which, entering the mouth of the person with whom he is conversing, penetrates to the lungs and produces phthisis."

**Rhode Island Medical Society.**—The ninety-second annual meeting of the Rhode Island Medical Society was held in Masonic Building, Providence, June 4, 1903. The President, Dr. George F. Keene, presided, and about 150 Fellows and guests were present. Dr. Halsey DeWolf, Secretary, reported for the Trustees of the Caleb Fiske Fund: that the amount now at their disposal is \$1,147.18. The prize of \$250 for the best essay upon the subject, Auto-intoxication as a Cause and Complication of Disease, was awarded to Dr. W. Louis Chapman, of Providence, R. I. The subject chosen for the prize essay of the coming year, 1903-4, is the Action of Light as a Therapeutic Agent, and the amount of the prize offered is \$250. It was voted to hold the next meeting in Newport, R. I. The following physicians were unanimously elected to Fellowship: Dr. Samuel Marsden Beale, Jr., Howard; Dr. Edward Campbell, Providence; Dr. William Francis Flanagan, Providence; Dr. Herman Canfield Pitts, Providence, and Dr. Henry Bertram Potter, Providence.

**Typhoid in Germany.**—It has been decided in Germany to wipe typhoid off the map and with this end in view most vigorous procedures are being planned by the Koch Central Bureau. Typhoid stations are being established throughout the German Empire with fully equipped laboratories and a well-paid staff of assistants. Every case of typhoid is to be tracked to its source and to be carefully isolated. The police force is at the service of the commission. Altogether the movement is both formidable and magnificent.

**Mosquito Destroyer to be Tested.**—Dr. Stiles will leave Washington, says the press agent, for Cape May or some other point in New Jersey where the mosquito rules, to pursue his researches into the efficacy of the parasite which it is said will exterminate mosquitoes by the million. The investigation to be made by Dr. Stiles is undertaken at the request of Prof. Smith, of Rutgers College, State Entomologist of New Jersey, who has aided Dr. Stiles in his search for the destroyer.

**Pure Food Law.**—The first tests under the recent law to prevent the importation of adulterated food are provided for in an order issued July 30, 1903, by the Treasury Department, authorizing the chemists of the Department of Agriculture to take for analysis samples of certain cargoes now on the way to American ports. The officers of both departments decline to state what these cargoes are or to name the vessels in which they are being transported, giving as a reason that if it were found on analysis that



the merchandise did not fall within the prohibition of the statute, harm would be done its owner by the attending publicity. Chief Chemist Wiley of the Department of Agriculture, under whose direction the tests will be made, said to-day that so far attention had been directed only against such products as spices, peppers, canned goods, cheese and other articles of the kind which had been under suspicion in the past. Declarations made before the American Consuls abroad concerning certain shipments included in the list named have already reached the Department of Agriculture, and as samples sent from the port of shipment could not reach the Department in time for the completion of the analysis before the entry of the cargo at the port of destination, the inspectors will meet the cargo on arrival and take the samples then. All the cargoes selected for analysis are now on the way. Declarations from abroad as to the purity of shipments are being received at the Department daily, some of them coming from the Orient. This work is being carried out by the United States Consuls, who notify the Department of all shipments of foodstuffs and transmit the declarations of the shippers.

**Electricity as a Therapeutic Measure.**—According to L. Guthrie (*Medical Magazine*, July, 1903) the first mention of electricity as a therapeutic measure is made by Salmon, an Englishman, in his book called "The Dispensatorie," which was published in 1676. He alludes to the use of the electric ray, torpedo or "cramp fish" in dropsy, consumption and headache. "The same helps the gout," says Salmon, "when trod on till the Stupidity reach the knee."

**Certified Milk as it is Made.**—The recent discussions on certified milk would seem to have borne excellent fruit, as witness the following from *Harper's Monthly*, anent the

"CRAFTY COW":

There was a Piper had a Cow,  
And he had Naught to Give her,  
So he pulled out his Pipes, and Played her a  
Tune—

Consider, Cow, consider.

The Cow considered Very Well.  
"You've done the best You're able,"  
She said: "Now put my Halter on,  
And lead me from the Stable.

"Take me to where the Health Board Sits,  
That It may Certify  
That You are You, and They are It,  
And also I am I."

The Piper Did as he was Bid,  
And When the Health Board Spied  
A Decent Cow who had till Now  
Gone on Uncertified—

It Waked and Wept  
Where it had Slept,  
And said, "We Certify  
That you Are You,  
And he Is he,  
And also We are I."

From Then till Now  
That Clever Cow,  
Presuming on her Label,  
Has made the Piper  
Work the Pump,  
And Loll'd about the Stable.

**A Journal on Syphilis.**—We learn from the *Journal of Cutaneous Disease* that *La Syphilis* is the title of a new French monthly edited by Dr. T. Barthélemy to be devoted entirely to this special field of medicine. The first number contains an original article on syphilis of the stomach by Prof. Alfred Fournier; a clinical lecture on the same subject by Prof. Dieulafoy; a general program by the editor outlining the plan and scope of his new work; clinical lectures by Gaucher and Brocq; a department for brief notes on cases which in themselves might be considered of too little value to be published, but which in the aggregate would be of great value to special investigators; a department for correspondence in which replies are requested to a number of debated questions, such as "double infections," conceptional syphilis as regards the mother, pigmentary syphilides of the neck, etc.; a department of therapeutics and society proceedings, especially societies for venereal prophylaxis; and finally a special abstract and bibliographical department. We echo the best wishes of the editor of the *Journal of Cutaneous Disease* for the success of *La Syphilis*. May it accomplish much towards the prevention and cure of a disease which "although venereal in its manner of approach is not so in its manifestations." By boldly adopting as title a name so often shunned or stigmatized with moral obloquy, a long step is made towards placing syphilis beside leprosy and tuberculosis as one of the great plagues of mankind and with them fully entitled to a special organ.

**Insanity in England.**—The annual report of the Lunacy Commissioners shows an enormous increase in madness in England and in Wales. In 1859 the number of insane was 36,762, or one in 536 of the population. There has been a steady increase from that time up to January 1, 1903, when the number of insane was 113,964, or one in every 293 of population. The rate of increase since 1894 has been especially notable, the gain being from 92,067. There was never such an increase in the numbers of insane as in the year ended December 31, 1902, the increase over the previous year being 3,251. The number of persons who lost their minds in 1902 alone was 22,581, or almost 500 per week. The increase was found almost entirely among pauper lunatics. The proportion of lunatics privately cared for to the population is about the same now as it was in 1859, whereas the pauper proportion is twice as high. A carefully compiled table explains as far as possible the causes of lunacy. The list is headed by drink, to which 23 per cent. of male and 9.6 per cent. of female cases of insanity is ascribed. Heredity accounts for the greatest number of women lunatics, the proportion being the high one of 24.6 per cent. In the case of men, heredity accounts for 18.8 per cent. of insanity. Previous attacks come next with 23.1 per cent. of women and 16.2 per cent. of men. In cases of unknown causes, men come first with 17 per cent. and women follow with 15.4 per cent. The general impression that the increase of lunacy is due to the mental wear and tear of modern life is not supported by the figures. Adverse circumstances, including business anxieties and pecuniary difficulties, account for the lunacy of 6.2 per cent. of the men and 3.8 per cent. of the women; mental anxiety, worry and overwork, 5.7 per cent. of the men and 5.9 per cent. of women; love affairs, one in 200 of men and three in 200 of women. There is about the same proportion of insanity through fright and nervous shocks. According to the figures of the commissioners, physical, rather than direct mental causes are responsible for the great increase in insanity. One case in three can

be traced to some disease or disorder. The percentage of old people who have lost their minds is as seven men to eight women. The age limits between which the majority of patients are admitted to asylums are 25 to 44. One-fourth of all those admitted to the asylums are found to have suicidal tendencies. Lunacy is increasing more in the country than in the cities. In Hereford and Exeter there is a higher percentage than in London, yet the average increase of insanity in the capital has attained the enormous figure of 500. Dr. E. W. White, who was recently elected President of the Medical-Psychological Association, points out that not only is insanity increasing, but that in the last thirty years there has been no material advance in the rate of recovery, despite the numerous new and rational principles of treatment. London particularly suffers from unlimited numbers of the worst kinds of cases of aliens and needy town dwellers, whose poor bodies and poorer minds are often sapped by disease. For this and another great cause of the increase of insanity, namely, the marriages of those tainted with lunacy, Dr. White advocates State regulations. He is also in favor of such Government control for the mitigation of the chief cause of insanity, drink. England within the last fifty years has become a spirit drinking nation. There is no standard of purity for spirits, and it is probable that the badness and rawness of many cheap whiskeys is responsible for much insanity, which laws for enforcing purity and maturity of all alcoholic drinks would prevent. Another factor in the increase of lunacy pointed out by Dr. White is the strain of modern education, which accounts partly for the enormous increase in insanity in the last few years in patients of the middle and upper classes between the ages of 18 and 28. Another cause is the fact that late marriages in the upper classes and early marriages in the lower classes are far more common than they were fifty years ago. Either extreme in marriage is regarded by the doctor as bad for future generations.

**Two Physicians Drowned.**—Dr. Adolph Cudell and Dr. Ernest H. Leute, two prominent young Cleveland physicians, were drowned in Lake Erie, off the German-American Clubhouse, August 5th. The two young men had procured a boat and, rowing a short distance into the lake, entered the water. Suddenly one of them was seen to throw up his hands, while the other man was swimming toward him. Before aid from the shore could be given, however, both had disappeared. It is presumed that one of the men was seized with cramps and that both were drowned while the second man was trying to effect a rescue.

## CORRESPONDENCE.

### OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, July 18.

THE KING'S SANATORIUM AND HIS ADVISORY COMMITTEE—SIR JAMES CRICHTON-BROWNE AS THE AVENGER OF CARLYLE—A SNUB FOR THE ANTIVIVISECTIONISTS—A VICTIM OF SCIENTIFIC RESEARCH.

I announced in my last letter that Sir Frederick Treves had retired from practice. This decision on the part of a surgeon in the very prime of life and in the full tide of success has naturally caused a good deal of surprise in the profession, mingled with speculation as to what a man so active proposed to do with himself during the long expectancy of life still before him. It has been publicly stated that he wishes to get into

Parliament, but this soft impeachment he disowns. Whether this is more than an official denial remains to be seen. In the meantime the King consults him about all sorts of things. His Majesty has recently insisted on making him a member of the Advisory Committee to which he entrusted the building and organization of the Sanatorium which the calculated liberality of an Anglicised German Jew enabled him to found. The Committee has, I am told, incurred the wrath of the King because it has been so long incubating its plans. There was a difficulty in finding a site with a sufficient water supply; and now that a suitable site has been found there has been delay in getting to work. The King, who seems to think that sanatoria can spring up in a single night like mushrooms, is chafing at what he considers to be the dilatoriness of the Committee. Like the Grand Monarque who once said to his courtiers in horrified tones *J'ai failli attendre*, Edward the Seventh hates the very idea of having to wait for anything. He has added Sir Frederick Treves to the Committee in the hope that he may galvanize it into a more strenuous life.

The fact is that the King has conceived the notion that he has somehow been made the tool of designing persons in this matter. He expresses in racy Anglo-Saxon the belief that the movement for the suppression of tuberculosis is the crazy dream of a few fad-dists, which is being exploited by certain astute individuals for their own purposes, and he is furious at the thought that he has allowed himself to be used as a decoy. He thinks that the million dollars given him by Sir Ernest Cassel might have found a more useful application if the sum had been added to the King Edward the Seventh Hospital Fund. It is pretty clear that some interested person has got the royal ear and has instilled into it a poison which has had the effect of turning him against a scheme that might be of the greatest benefit to some of the most unfortunate of his subjects. He does well to be angry with his Advisory Committee, though not for the reason which he alleges. It is understood that it has signed a contract with a German physician who is to be the head of the new Sanatorium. This, when it becomes generally known, is certain to cause much indignation in the profession of this country. It was a fatuous thing to do, especially considering that two out of the six members of the Advisory Committee belong to the great Teutonic race. It is probably true that the nomination is due to female influence, to which our Gracious Sovereign is peculiarly susceptible, but, as is the way of royalty, he will doubtless throw all the responsibility of an unpopular appointment on the Committee. *Delirant reges, plectuntur Achivi*—the King rages, the Committee palavers, and poor consumptives suffer.

Sir James Crichton-Browne, who recently started an unsavory controversy about the married life of Thomas Carlyle, is one of the chief administrators of the Lunacy law, and can therefore speak with some authority on the vagaries of mad people. His judgment that poor Mrs. Carlyle at one period of her life suffered from insanity may therefore be accepted with the respect due to his special experience. But his attempt to represent Carlyle as a tender and considerate husband shows a talent for special pleading which might be regarded as incongruous in a scientific man were it not that men of science so often display such an amazing faculty of distorting facts and perverting the plain sense of words. Sir James Crichton-Browne, with a luxuriance of vituperation that would be more natural in a theological than in a medical controversialist, denounces James Anthony Froude for having traduced his hero. Yet Crichton-Browne's contributions to this controversy supply abundant examples of the un-



scrupulous methods with which he reproaches Froude. The general feeling in the profession, as far as I can gather, is one of disgust that a man who poses on platforms and in the newspapers as one of its leaders should have disinterred a forgotten scandal, and like one of the old "resurrection men" sold his foul booty for the delectation of the "many-headed beasts," which licks its chops with a special relish over any filth that seems to besmirch a great name. From most of the literary journals he has received very severe handling. But the thick hide of Scotch self-conceit in which he is swathed prevents even the keenest darts of criticism from penetrating to the quick. And his wares have doubtless sold sufficiently well for him to say with the miser in Horace:

Populus me sibilat, at mihi plaudo

Ipsæ domi, simul ac nummos contemplor in arca.

The Antivivisection cranks received a well-deserved snub from the Home Secretary the other day. No one can perform vivisection in this enlightened country without taking out a license like a publican or a cab-driver. It is the Home Secretary who grants these licenses; hence that functionary is freely used by the antivivisectionists as a target to shoot at. On July 15th a deputation from the Parliamentary Association of the British Union for the Abolition of Vivisection waited upon the Home Secretary and demanded that he should straightway suppress vivisection, or at any rate, until the time should arrive when public opinion would insist on its abolition, that he should lessen the number of experiments and the pain caused to the animals used for purposes of research. The Home Secretary, Mr. Akers-Douglas, dealt firmly and not over gently with the faddists. On one of them saying that the sight of vivisections induced a callousness that in some cases developed into a feeling of positive pleasure, the Minister declared that such a statement was a gross and grotesque libel on a high-minded and self-sacrificing profession. He went on to say that he had only to administer the Act (permitting vivisection under certain restrictions) and had no power to stop the practice. He declared further that nothing would induce him to introduce a bill for the abolition of vivisection into the House of Commons, or to recommend the Government to do so. The deputation had doubtless hoped to browbeat the Home Secretary, but got a lesson from him by which it is to be hoped that some of them will profit. The true inwardness of the situation does not appear in the newspaper reports of the interview. For two or three years past there has been internecine war between some of the leaders of the antivivisection movement—if that can be called a movement which never makes any headway. Miss Frances Power Cobbe and her adherents are abolitionists; their cry is *Delendum est laboratorium!* Mr. Stephen Coleridge on the other hand takes the more politic line of asking for the limitation of vivisection; he would not strangle it outright but slowly asphyxiate it by legal pressure. The two parties naturally hate each other with the fiercest sectarian hatred. The Coleridge faction has been a good deal before the public lately; it may therefore be surmised without much breach of charity that the deputation of the abolitionists to the Home Secretary was mainly inspired by the wish to show their supporters that they are still alive. There can be no doubt that antivivisectionism is losing ground in this country owing to the discreditable methods of controversy employed by its advocates. John Bull is stupid, but he likes common sense and he likes fair play; the wild denunciations of research offend the former sentiment, while the vile lies and odious imputations, thrown at scientific workers like filth in the hope that some of it may stick, outrage the latter. The followers, alike of

Miss Cobbe and of Mr. Stephen Coleridge, are mainly composed of soft-hearted women and soft-headed men who greedily swallow any calumny, however gross, that may seem to discredit science which they hate with all the virulence of ignorance and prejudice.

In the list of pensions recently granted by the Prime Minister I see the name of "Mrs. Zare Elizabeth Blacker in recognition of the services of her late husband, Dr. A. Barry Blacker, who lost his life through his devotion to medical research, £120." This is the widow of Dr. Blacker, of whose sad fate I had something to say in a previous letter. He cured the King of a small rodent ulcer by the application of the X-rays, but himself fell a victim to an extensive malignant growth involving the shoulder joint. While curing the King he might have said, like the gladiators in the Roman Circus, *Ave Cæsar Imperator, Moriturus te salutat!* The disease which killed him began in a burn of the hand caused by X-rays; this is probably the meaning of the allusion to his death having been caused by his devotion to medical research. The amount of money at the disposal of the Prime Minister for Civil List pensions is very limited; but I think some way might have been found of rewarding Dr. Blacker's important services more liberally than by a pension of \$600 to his widow.

#### THE HOMBURG SPA.

To the Editor of the MEDICAL NEWS:

DEAR SIR: This representative German spa lies about 17 miles southeast of Frankfort-on-Main, from which city it is reached by frequent trains in from 25 to 32 minutes. The location is in the foot-hills of the Taunus range of mountains, about 600 feet above the sea-level. The town contains about 9,000 inhabitants and has been well known as a watering place since 1834. There are indubitable indications, however, that the early Romans who occupied the Taunus district from the beginning of the Christian Era until 300 A.D., used the water for medicinal purposes, as the foundations of their baths and sanatoria are still found in excavations for buildings, etc. There are documentary proofs of this use in the year 773. The situation here presents many natural advantages which the art of man has greatly extended and diversified. The town is situated on rising ground sloping from N.W. to S.E., and giving the main streets, three in number, the same direction. These are crossed at almost right angles by five or six side streets, running N.E. and S.W., with a gentle fall from the center street of about one per cent. The soil consists of slate, with a substratum of impermeable clay. To the excellent natural drainage gained by the conformation of the surface cemented pipes have been laid through most of the streets during the last ten years, and at this time the town is building a second system of pipes, so that the house and drain waters are entirely separated and all impurities carried out of the municipal precincts at once. The condition of the streets is positively unexceptionable from a sanitary point of view. It makes a New Yorker thoughtful to observe the jealous care with which minute scraps of paper, fallen leaves, etc., are gathered up and removed. The main streets are exceedingly attractive, being well-lined with shade trees and bordered by attractive and well-built hotels and private residences. Many of the latter indicating by modest signs that rooms are "Zu Vermieten." Even Paris itself might be proud of the Kaiser-Frederick Promenade, the principal driveway facing the Kur-Park, and containing the villas of the wealthy summer residents.

The season here, as at almost all the German spas, lasts from May 1st to October 1st. As at Saratoga, however, August is the most important month, and the season is at this time just getting into full swing. A majority of the foreign visitors are English, but many Americans are seen, and the writer was delighted with a big photograph of the ever-popular junior Senator from the Empire State in a shop window this afternoon. The occasional torrid days at our home resorts are not known here. Light wraps are desirable toward evening all the summer. The temperature during the last few days has ranged from 55° to 68° F. The American visitor is struck by the entirely different management of the German spas from our own. Instead of being conducted by private individuals the springs are under the control of the town authorities. Our thrifty Teutonic friends have long since become acquainted with the value of their mineral springs as a source of revenue to the government. Every person remaining longer than three days in Homburg during the "season of cure," i.e., from May 1st to October 31st, is looked upon as being here for the benefit to be derived from the waters, and therefore obliged to take a "Kur ticket" on the third day after arrival. The payment of the tax entitles the visitor to the use of the mineral waters for drinking, to the privilege of buying bath tickets, and gives admission to the Kur-gardens, promenades, concerts, etc. The tax for the season amounts to 20 marks (\$4.80) for one person and somewhat lower rates for additional members of the same family. On the exempt list, I am happy to say, are physicians and surgeons and their families.

There is nothing hap-hazard about the treatment here. The first thing the health-seeker does after getting himself settled is to place himself absolutely in the hands of one of the medical men of the town, of whom there are some 18 or 20. I am constrained to believe that all matters pertaining to the "Kur" are conducted on a strictly honest basis. The local physicians are exceedingly jealous of the fair name of Homburg. If the patient can be benefited by a stay here he is given advice and treatment accordingly. If his case is unsuitable for the waters and climate, he is warned to get out without undue delay. It is regarded as highly desirable by the faculty to present an attractive morbidity and mortality table for comparison with numerous watchful and jealous competing spas not far away. The springs at Homburg are seven in number, known as the *Elisabeth-Brunnen*, *Kaiser-Brunnen*, *Ludwigs-Brunnen*, *Louisen-Brunnen*, *Stahl-Brunnen*, *Landgrafen-Brunnen*, and *Sool-spruden Brunnen*, or Brine-well. The Stahl-Brunnen and Louisen-Brunnen are chalybeates. The others may be classified as muriated alkaline salines; all contain free carbonic acid, while several show sulphureted hydrogen in appreciable quantities. Following is an analysis of the Elizabeth spring, the most important of the group, by Prof. Fresenius:

#### ELIZABETH-BRUNNEN, HOMBURG MINERAL SPRINGS.

(Muriated alkaline saline.)

Estimated in parts per 1000.

Solids.	Grains.
Sodium chloride .....	9.86
Potassium chloride .....	0.34
Lithium chloride .....	0.02
Ammonium chloride .....	0.02
Calcium chloride .....	0.68
Magnesium chloride .....	0.72
Magnesium iodide .....	Trace
Magnesium bromide .....	Marked Trace
Calcium sulphate .....	Marked Trace
Baryta .....	Trace

Strontia .....	Trace
Calcium bicarbonate .....	2.17
Magnesium bicarbonate .....	0.04
Iron bicarbonate (of oxide) .....	0.09
Manganese bicarbonate (of oxide) .....	Trace
Nickel and cobalt bicarbonate .....	Trace
Calcium phosphate .....	Trace
Silicic acid .....	Trace
Total solids .....	13.98
Carbonic acid entirely free .....	1.95
Temperature of spring (10.6° Celsius) .....	51°F.
Sp. gravity of water .....	1011

This total of something like 800 grains of solid matter per 115 gallons, about three-fourths of which is common salt, does not show a remarkable mineral water. We have within our own limits many springs of this class, some of them indeed far richer in mineral ingredients. Yet the Elizabeth-Brunnen gives character to a group of mineral waters which have become justly celebrated throughout the civilized world. This is for the reason that to an undoubtedly valuable and useful medicinal agent to start with, has been added a most excellent and thorough system of application. The Germans do not question the value of their mineral waters nor the skill and integrity of the medical men who direct the treatment at their spas. As a consequence the results attained are very gratifying. Persons suffering from old and obstinate cases of intestinal catarrh, for example, come to Homburg, surrender themselves to the doctor, observe a prudent régime, indulge moderately in the serene and harmless pleasures of the place, drink the waters—always under instructions—and return to their homes in four, six or eight weeks, restored to health. Such has been the history of Homburg as well as many other continental spas for many generations past. It is not to be wondered at that spa treatment occupies so high a plane in the opinion of the profession as well as of the laity. The diuretic, laxative, antacid and bracing effect of the Homburg waters cannot be fully accounted for by a study of the analysis of the springs. Artificial waters constructed in accordance with the analysis have failed to produce the same physiological effects upon the human system. Possibly the science of "physicalische chemie" may throw some new light on the process of dissociation in saline solutions and the formation of "ionen." Investigation in this direction, however, has hardly passed beyond the point of scratching the surface; while waiting for further light our hard-headed and practical Teutonic friends are going right on enjoying the advantages which Nature has given them and leaving for their savants the task of working out theories and explanations. Very truly yours,

JAMES K. CROOK, M.D.

Homburg vor d Höhe, July 23, 1903.

## SOCIETY PROCEEDINGS.

### STATE MEDICAL SOCIETY OF WISCONSIN.

Fifty-seventh Annual Meeting, Held at Milwaukee, Wisconsin.

The President, J. V. R. Lyman, M.D., of Eau Claire, Wis., in the Chair.

**Hemorrhage into the Cranial Cavity Following Injury of Skull.**—This paper was read by Dr. Charles H. Lemon. He laid emphasis on the importance of such lesions, due to the peculiar nature of the case. As a result of many experiments a remarkable resiliency of the skull has been demonstrated. The pathology of



cerebral lesions has often been misinterpreted. Those cases which are accompanied by a slow hemorrhage are the most interesting. All tissues undergoing trauma react alike, the peculiar conditions obtaining in the skull causing peculiar symptoms. Injury to the skull, causing unconsciousness, should be carefully watched. The following symptoms point to intracranial pressure: A tendency to sleep, vomiting, twitching of muscles, incontinence of urine and feces, inequality of pupils, loss of reflexes, stupor with or without remission. It is not necessary that fracture have grave or fatal results. In fact, fracture is sometimes a means of reducing pressure and many cases with fracture recover. Even venous sinuses can be torn without fatal results. When infection occurs it may be delayed and death result from pyemia rather than meningitis. In discussing treatment the author condemned depletion and the use of ice bags, etc.

**Retrodismplacement of the Uterus.**—This was the subject of Dr. G. A. Kletzsch. The generative organs are protected by heavy walls and strong fascia. The support of the uterus other than ligaments must not be forgotten. The perineum gives great support while the ligaments hold up the uterus but loosely. The peritoneal reflexion is also a factor. The uterus is not in a fixed position; but the cervix is more or less fixed, the fundus being rarely at rest. The uterus belongs in the true pelvis. Among the causes which disturb the position of the uterus are labor, miscarriage, faulty and too early use of forceps. All of these suggest the importance of prophylaxis. Regarding treatment, slight local operations and long continued local treatment will often prevent the necessity of radical operation. The Alexander operation is ideal for simple displacement without adhesion. Vaginal fixation distorts the position of the uterus, abdominal fixation is not perfect; but is found the best operation available.

Dr. F. Shimonek, in discussion, emphasized the distinction between retroversion and retroflexion, and advocated the use of pessaries in selected cases.

Dr. W. E. Fairfield criticised the use of tight binders and continued dorsal decubitus after parturition as tending to induce displacement of the subinvolved uterus.

**Presidential Address.**—The president's address dealt with the early history of the society and its present relationship to the American Medical Association. The territorial society recognized the County Society as a unit thus foreshadowing the theory now advocated by the national body. The author quoted freely from Dr. George H. Simmons' writings on reorganization of the profession and urged that the Wisconsin Society fall in line with the work done in many other States.

**The Scientific and Practical Value of Bacteriological Examinations of the Blood During Life.**—This was the theme of Dr. L. Hektoen, Professor of Pathology in Rush Medical College, Chicago. There has been much progress of late in the bacteriological examination of the blood. The proper method is by puncture of a vein at the bend of the elbow under strictest asepsis. Pain is insignificant and there is no danger.

In septic diseases very interesting cultures may be made, and the difference between local infection and general invasion of the blood may be demonstrated. Infection may occur with or without local lesions. This method has a special value with reference to treatment of specific serums. In all cases accurate diagnosis on an etiological basis is absolutely necessary. The bacteriological examinations aid us in prognosis. We find streptococcal cases frequently recovering. Ten per cent. of scarlet fever cases have been found to have the streptococcus in the blood. In

pneumonia out of 100 cases, 95 showed the pneumococcus. The prognostic value of such examination is slight. In typhoid fever the typhoid bacillus is found in the blood from the beginning, and reappears with exacerbations. Blood examination is valuable for prognosis, particularly in the presence of epidemics. The typhoid bacillus was found in the blood of three cases of scarlet fever only one of which desquamated. Intestinal lesions of typhoid have no relation to the severity of the attack. The early pharyngeal point of invasion is through the medium of the tonsils. The paratyphoid bacillus has been found on the feet of flies. Many cases in the Ithaca epidemic gave negative results with the Widal test.

**Management of the Mother During Child-bed Period.**—This was Dr. A. D. Gibson's paper. He said raw surfaces of the uterus and genital tract are easy sources for infection. Complete involution of the uterus does not occur for three months and the woman should conduct herself with this in mind. Afterpains are more pronounced if the uterus has been excessively dilated, as by excessive amniotic fluids, etc. The writer opposes the use of the binder as tending to promote retroversion, opposes rupture of the membranes, frequent examinations and the use of douches, regarding the practice of ordering the nurse to give them as little short of criminal. A chill soon after labor is frequent and usually unimportant. The kidneys should be kept active and the lying-in room cool, cooler than is suitable for the child and the best plan is to have separate rooms for mother and child. As to diet, avoid slops. The child should be nursed at once. The bowels should be moved from twenty-four to thirty-six hours after labor with castor-oil or compound licorice powder.

**Shortcomings of the Physician, Particularly in his Relation to the State and Hygiene,** by Dr. Albert F. Fuchs. This paper dealt with the relation of the physician to the community at large with reference to other matters than those directly connected with medicine. The physician's attitude on questions of religion, politics and social questions are of greatest importance and there is much to be desired in the attitude of the profession toward these questions.

**Annual Address in Medicine. The Diagnosis and Treatment of Nephritis,** by Dr. Arthur R. Edwards. Among many other interesting things he said systematic and repeated examinations of the twenty-four-hour specimen of urine should make diagnosis easy; but there are exceptions. The total amount of urine may be decreased in the latter stages of nephritis or in the presence of hypertrophy. Albumin may be absent in individual cases or may be present in excess. Nephritis without albuminuria undoubtedly exists. Casts may be found at intervals when albumin is temporarily or permanently absent. Casts should be searched for even in the absence of albumin. Hyaline casts are found in normal urine; granular and epithelial casts signify degenerative or inflammatory lesions. Casts frequently follow operations and are found in toxemia. Parenchymatous nephritis may have no cardiovascular complications; but dilation or atrophy of the heart may exist. The heart may lead to or follow renal disease or both may be referred to a common cause. Edema in chronic nephritis is often due to permeability of the blood vessels. It is hard to say why some cases are so much more marked than others. Diagnosis of latent atypical non-albuminuric nephritis is especially important if other lesions are present. We must always think of all other possible diseases, and we can often only suspect the presence of kidney complications. Frequently the smaller the urinary the greater the pathological findings at the autopsy. Nephritis has

been found in twenty-five per cent. of autopsies where the kidney lesions had no particular significance during life.

Among the symptoms of chronic nephritis are those of the nervous system, digestive system, failure of the heart, complicating pneumonia, pleurisy, etc. When uremia is present, be sure that other possibilities are excluded. The pulse is important, being slow until complications are imminent, such cases may closely simulate digitalis poisoning. Uremia may simulate almost any brain lesion.

Preventive therapy is of importance, rest and exercise being fundamental. Rest in the horizontal position is good for kidney lesions. Passive exercise is useful if the heart is weak. When improvement occurs vigilance should not be relaxed. Rest in bed protects the skin and relieves vascular tension, and rest should be continued often for a year or more. Physical rest is of prime importance; after mental fatigue violent exercise should be avoided. The diet should be non-irritating;—limit albuminous foods; give fats and carbohydrates freely. Avoid albuminous foods because they must be eliminated by the tubules. Do not diet too much on general principles, if the patient loses weight the diet should be altered. Few patients cannot take milk, if it is taken as food and not as a beverage. Avoid tea, alcohol, coffee and spices. For the edema, diuretics are recommended; but are unsatisfactory. Do not allow catharsis to interfere with the weight. Sweating eliminates fluids rather than solids; causes too much concentration of the blood, and favors uremia. Mechanical removal of fluids is better, a deep incision (3 inches long) in the leg will often bring from one to three gallons of fluid containing 2 per cent. of urea. This urea is thus removed from the circulation directly. In the last stages the heart is the main feature. Avoid irritation and overstimulation. Hypertrophy is a favorable condition; but it only postpones the fatal issue.

#### **Indigestion; A Few of its Causes and Effects.**

This paper was read by Dr. H. B. Sears. He said any break in the complex chain of digestion ruins the whole. Environment plays a large rôle. Early detection of indigestion is of great importance. Too many members of families, varying in age, eat the same kind of food without discrimination. Haste in eating is the most fruitful cause of indigestion; poor teeth are scarcely less to blame. Insufficient cooking is the bane of the American stomach; for instance, beans should be boiled ten hours and then baked five hours in the oven, a process which it is hard to induce American cooks to agree to. Children under ten years of age are better without meat. All cases of indigestion should be treated individually and no general rules can be laid down.

**Semilunar Cartilages, Their Anatomy and Surgery.**—Read by Dr. H. A. Sifton. This paper dealt with the anatomy of semilunar cartilages; and various forms of displacement which may occur and the treatment both operative and otherwise. The importance of rest was emphasized and the use of passive motion; and especially the necessity for restricted motion for a long period.

**Sequelæ of Adenoids.**—This was the subject of Dr. C. D. Conkey. He said that adenoid growths are a disease of childhood and generally pass away with adolescence; but the effects remain. Deformities of the nose and even of the jaw may result from neglected and excessive adenoid growths. There may be arrested development of the bones of the face. The chief trouble comes from prolonged mouth breathing which at once disappears after the growths have shrunk. Hypertrophic catarrh, affections of the ear, tonsils and often larynx and bronchial tubes are some of the unfor-

tunate and often permanent results of a comparatively insignificant affection.

**Significance of the Perforating Wounds of the Eyeball.**—Read by Dr. J. A. Bach. Aside from the direct results of injury to the eyeball, which are to be treated on ordinary surgical principles, our chief care should be directed toward the avoidance of sympathetic ophthalmia. The old theory, which has been largely discarded, is again coming into quite general acceptance, namely, that sympathetic ophthalmia may develop without infection. Ciliary reflex plays a large rôle in the development of sympathetic ophthalmia and our chief care should be to avoid all possible sources of irritation.

**Diagnosis of Hysteria.**—Read by Dr. Hugh T. Patrick. This paper dealt with cases of hysterical anesthesia following trauma. Our chief diagnostic point in distinguishing hysterical anesthesia lies in the fact that the line of demarcation is so sharply defined and fluctuating, being found to vary on repeated examinations. Great care should be exercised to detect the presence of other diseases coexisting with hysteria.

**Prostatectomy.**—This paper was read by Dr. T. W. Nuzum. He summed up as follows: (1) Prostatectomy is an operation destined to give great comfort to patients suffering extreme pain; (2) the perineal route is the best; (3) the operation is warranted even in advanced old age; (4) weeks should be given in preparation before the operation; (5) the horseshoe incision is the best; (6) the greatest danger lies in hemorrhages, especially if due to sclerotic arteries; (7) the results are encouraging considering the bad conditions under which such operations are generally done; (8) better technic will bring better results.

#### **Post-mortem Degeneration of the Pancreas.**

Paper read by Dr. Wm. F. Becker. He advanced the theory that microscopical examination of the pancreas may under some conditions give decisive evidence as to the length of time, which has elapsed since death has occurred and may prove of value in medicolegal questions. The pancreas is a valuable organ for such examination, owing to its comparative freedom from disease and its protected situation in the abdominal cavity. Many factors must be considered in drawing conclusions from the post-mortem appearance of the pancreas, such as temperature surroundings following death, length of time after the ingestion of food, etc. In support of his theory numerous microphotographs showing the pancreas at varying intervals after death demonstrated the different way in which degenerative processes occur in the different histological structures of the gland.

**Albuminuria in the Apparently Healthy.**—This was the subject of Dr. W. H. Washburn. He reported the histories of 258 cases of albuminuria discovered in supposedly healthy persons applying for life insurance examination. Thirty-five of this number showed evidences of disease such as cardiac murmurs, casts, cystitis, etc.; eleven of these cases are dead from unknown causes, 70 have been lost sight of. Out of the 153 remaining cases 6 have died, 2 from pulmonary tuberculosis, 1 from pneumonia, 1 from paralysis, 1 from acute Bright's disease and 1 without a diagnosis having been made. The mortality among these cases, if we make allowance for the 35 mentioned, is smaller than would have been expected. Out of 100 cases due to albuminuria only 14 still show albumin. The evidence shows that the treatment instituted appeared to be very beneficial. No one line of treatment, however, was pursued in all these cases.

**Annual Address in Surgery.**—This was delivered by Dr. William J. Mayo, of Rochester, Minn. The



author presented conclusions drawn from a study of 900 cases of operations in the upper abdominal cavity. There is a close relation between the affections of the gall-bladder, bile passages, stomach and duodenum. The duodenum acts as a sort of buffer and is secondarily attacked; the same is true of the pancreas. Abdominal surgery owes much to pelvic surgery. Mistakes there have helped us later in gastro-enteric work. Surgery of the stomach has had to live down a bad name. The stomach is one of the most favorable organs for operation, and the chief difficulty lies in the diagnosis. Ignorance breeds complexity and at least half of our stomach diseases must go. The author states that out of 1,100 cases, where careful examination was made of the stomach contents and the position of the organ, 300 were operated and the diagnosis found correct in 80 per cent. Chemical examination of the stomach contents is often negative and should not be too greatly relied on or cause us to delay too long before operating. Exploratory incision is indicated in all doubtful cases. To get an outline of the stomach, a stomach tube and ordinary Davidson syringe are sufficient. Refinements of technic are found harmful. Simple methods give enough to warrant sending the patient to the surgeon for treatment.

**Ulcer.**—Do not confuse acute and chronic symptoms, pains exist chiefly in old ulcers only; the nearer the pylorus the greater the pain. Ulcers of the duodenum give symptoms resembling those of gall-stones. Pain may disappear for some time and hemorrhage and vomiting are rare and late. Cure may result from rest, but the ulcer may return. Out of 500 cases in a London hospital, 211 had previous attacks, 18 per cent. died, 42 per cent. are doubtful cures, most of these cases are surgical. Ulcer is often diagnosed as cancer. Chronic ulcer is a disease of adult life. Drainage operation gives marvelous results. Two hundred cases show the ulcer mostly to the right of the pylorus on the great curvature, then there is great pain from pyloric spasms. Surgical treatment is not settled. Excision of the ulcer is found feasible, but it is often hard to find. Redmond has suggested excision of the pylorus, the so-called "ulcer-bearing area." Dilation without organic trouble, where there is no retention and little stagnation, is not much benefited by operation; this is true also of gastroparesis. Beware of neurasthenic stomach.

**Cancer of the Stomach.**—Early diagnosis and operation are very necessary. In five years operations for cancer of the stomach will give as valuable results as are obtained in cancer in the breast. Return of the disease is more often found in the liver than in the stomach on account of the blood and lymph supply.

**Ethyl Chloride as a General Anesthetic.**—This was Dr. Franz Pfister's paper. He said that only pure ethyl chloride must be used; no methyl chloride must be present. The preparation called kylene has been found to be reliable. Failure and accidents have been due to impure drugs and faulty administration, the results are good, as there is an absence of unpleasant by-effects. The use of ethyl chloride is limited to minor surgery. Patients should be prepared as for other forms of anesthesia, a cone may be used as for nitrous oxide, tight over the face or it may be sprayed on a double layer of gauze. From 5 to 20 c.c. will produce anesthesia for ninety seconds. Anesthesia may be maintained from six to ten minutes; pupillary and conjunctival reflexes are all that need to be watched; dilation of the pupil is a danger signal; breathing is slightly stertorous. Previous hypodermic injections of morphine are recommended.

Dr. Thienhaus, in the discussion, stated that Kocher has rejected the use of ethyl chloride and reports 7 deaths in 17,000 cases.

**Diagnosis and Treatment of Some of the Inflammatory Conditions of the External Ear.**—Read by Dr. Gilbert E. Seaman, who said that catarrhal inflammation of the external ear is a misnomer, as there is no mucous membrane in the external ear. Furunculosis should be treated early, and is a very painful and troublesome affection; the nearer the tympanum the greater the pain. Recurrence is very frequent. Treatment on ordinary aseptic lines; incision under local anesthesia and the use of a 50-per-cent. solution of argyrol. Eczema is very difficult to treat, care should be given to hygiene, diet, use of laxatives, avoidance of soap and water and thorough removal of crusts, debris, etc. Spray with peroxide of hydrogen, or yellow oxide of mercury 2 gr. to the ounce, as also oil of ergot.

**Septal Deflections.**—This interesting paper was read by Dr. F. T. Nye, who said that septal deflections may be classified (1) as simple, (2) deflections with excess of tissue, (3) deflections with slight or partial excess. Etiologically they may be classified as due to congenital malformations or traumatism. As a result we have imperfect respiration, pharyngeal and laryngeal, and imperfect drainage from accessory sinuses. Both speech and smell may be affected. The treatment is chiefly surgical. The floor of the nose must be depressed, redundant tissue must be removed, the septum must be readjusted and maintained in position. Cocaine and adrenalin solution are indispensable. The writer prefers a blunt punch for operations on the septum, sterile gauze may be used for the first twenty-four hours, followed by a splint.

**The Practice of Obstetrics.**—This was the title of Dr. E. F. Fish's paper, who said the importance of strict asepsis and careful after-attention cannot be too greatly emphasized. Too much obstetrical work is left for the younger and inexperienced physician, older physicians avoiding this class of work partly on account of inadequate compensation. Examinations should be as infrequent as possible, douches should be avoided and the case be considered as strictly surgical.

This paper was very elaborately and thoroughly discussed by Dr. Scollard and others, and in the matter of examination and the position by outside manipulation many differences of opinion were brought forth.

**The Depurative Functions of Organs.**—Read by Dr. C. R. Brown, who remarked that all life is at first referable to a single cell. Differentiation arises first as a sort of inflammatory reaction, it is Nature's response to outside insults. Inflammation is only a natural process exaggerated. The location of inflammation is of great importance. Edema of the hand is quite a different thing from edema of the glottis; inflammation of the finger is a different thing from inflammation of the appendix. The lungs, liver, etc., have functions other than the conventional ones of the organs, these are of a depurative nature, for instance, the liver is well known as an important agent for the arrest of poisons. The lymph system also plays an important part, and this is true of the ductless glands. Tonsillitis is not due to a specific microbe; many bacteria can cause tonsillitis, and disease is often arrested by the tonsils with resulting inflammation of these organs and no further bodily invasion. The Klebs-Löffler bacillus may cause merely a simple tonsillitis and the general system escape diphtheria. The author reported and analyzed several interesting cases.

**Myomectomy of Uterine Fibroids.**—This paper was read by Dr. A. J. Puls, who said that myomectomy is recommended in younger patients who have not reached the menopause. It is in accord with the general principle that all healthy tissue should be left, it is particularly recommended for fibroids because return of

the disease is not common, and not so grave as in the case of malignant disease.

**Surgical Progress.**—By Dr. W. H. Earles. The author reviewed the progress of surgery during the past year, calling attention to the notable progress being made in gastro-intestinal work, prostatectomy, etc.

**Manifestations of Rheumatism in Infancy and Early Childhood.**—This most interesting subject was introduced by Dr. Arthur T. Holbrook, who said that great confusion in terms and much progress is needed in accurate diagnosis. The cause of rheumatism is an accumulation in the blood of something which irritates; especially irritating to the synovial membranes. Both the uric acid and the lactic acid theories have been refuted, and we are still in the dark. Acute articular rheumatism is rare under three years of age, the cases of grip, etc., are often misnamed rheumatism. Temperature in children with rheumatism does not often run high. Joint swellings are slight and not many joints are affected at once. Heart involvement is so common as almost to be a symptom rather than a complication. Eighty-three per cent. of cases under ten years have heart symptoms. Peculiar heart sounds often accompany involvement of that organ; there is a sort of dulness or muffling, a "murmurish" sound. Subcutaneous fibrous nodules are often found about the joints and tendons in children. Diagnostic points are heredity, history of previous attacks, and general clinical picture; exclude the following: multiple neuritis, tuberculosis, syphilis, scurvy and "growing-pains." The danger in rheumatism comes almost always from the heart.

**New Officers.**—The following officers were elected: President, Dr. F. E. Walbridge, Milwaukee, Wis.; First Vice-President, Dr. James Mills, Janesville, Wis.; Second Vice-President, Dr. C. C. Galot, Shullsburg, Wis.; Secretary, Dr. C. S. Sheldon, Madison, Wis.; Treasurer, Dr. S. S. Hall, Ripon, Wis.; Delegate to the American Medical Association, Dr. Evans, La Crosse, Wis.

The Society adopted the constitution and by-laws recommended by the American Medical Association, thus following in line with the majority of the States of the union. Seventy-eight members were added to the membership of the Society, and it is expected that during the coming year County Societies will be organized throughout the State. A committee of ten was appointed to serve as temporary council until organization throughout the County shall have been completed.

#### THE MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

*Regular Monthly Meeting, held June 3, 1903.*

The President, Charles N. Dowd, M.D., in the Chair.

The scientific business of the evening consisted of the reading by Professor Ewald, of Berlin, of a paper with the title *On Stomach and Intestinal Crises*.

**Abdominal Pains.**—Professor Ewald said that there are many causes of pain in the upper abdominal region that must not necessarily be referred either to the stomach or the intestines. Renal colic is not infrequently localized in the upper part of the abdomen and is not always referred to the part or the kidney affected. It has often been noted that renal calculi when forming are apt to give a sense of acute discomfort in the upper part of the abdomen on either side. Gall-stones in process of formation give rise to pain of the same kind, which not infrequently is localized in the right epigastrium as if it were the result of stomach or duodenal conditions. Pancreatic calculi are usually

rarer and the pain is commonly referred to the other side, but the possibility of their occurrence must not be forgotten or serious mistakes may be made, especially as pancreatic operations are indicated as early in the case as possible, and physicians should recognize them before complications have occurred, if possible.

**Stomach Pains.**—There are many causes of pain in the stomach itself besides the gastric crises which are referred to degeneration of the sensory tracts of the cord. Ulcer of the stomach may give rise to severe pains of burning character, though the differential diagnosis is usually not difficult if the physician secures a good history of the case or finds a point of localized tenderness in the abdomen just over the region of the ulcer. True stomach pain may also be due to spasm of the pylorus. This is not frequent, but its occasional occurrence can scarcely be denied. This type of pain is a true colic, being due to a spasmodic contraction of a mucous-lined canal. Intestinal worms may at times give rise to painful conditions referred to the stomach or duodenum, probably consequent upon the wandering of the parasite into the upper part of the intestinal tract.

**True Gastric Crises.**—One of the most interesting forms of pain in the upper abdomen is due to the occurrence of stomach crises in what is known as locomotor ataxia or tabes dorsalis. These cases have only been recognized in their true character in comparatively recent years, but they form at the present time an important part of the work of the specialists in diseases of the stomach. In the last ten years Professor Ewald has seen 89 cases of the affection, but he has the notes in detail of only about 50 of the cases. These details are, however, sufficient to give a very good idea of the frequency of the affection, of its probable etiology, of its peculiar symptoms and course, and of the treatment that has sometimes been found effective.

**Syphilis as Cause.**—The first question that naturally arises is how frequently can syphilis be found in the history of these cases. Out of the 50 cases, 26 either confessed to syphilis or showed traces of syphilitic lesions. This is about 60 per cent. of the number, and this percentage is about what has been found by neurologists in the history of tabes generally. In some of the cases the primary and secondary lesions of syphilis were more than ten years past. Usually a number of years had gone by since the last signs of any syphilitic lesion had been seen. Not infrequently the gastric pain was the first symptom of the beginning of tabes dorsalis. Sometimes other symptoms, especially those in the eyes or in the station, the so-called Romberg symptom could be found on careful examination, though the patient had known nothing of their existence before the attack of pain.

**Duration of the Disease.**—In some of the patients under Professor Ewald's care the gastric crises continued for more than ten years. The average length of the cases is about three years. One patient had his first attack of tabes only two months before he came under observation. The attacks recur at intervals. At first these intervals are long, sometimes there is no recurrence for over a year or even two years. Then the intervals become shorter until finally the gastric crisis is repeated every week or two. The attack of pain lasts from one-half hour to forty-eight hours. Very few cases get any relief for at least several hours after the beginning of the attack. The pain is localized in the epigastrium and the preliminary sign of the attack is a causeless nausea followed by vomiting. The vomit consists at first of food and then mucus, followed by blood in streaks. Twice Professor Ewald has seen the vomiting of blood accompanied by melena. This is rare, however, and is probably due to the rup-



ture of small blood-vessels during the efforts at vomiting.

**Character of the Attack.**—The pain usually comes on very suddenly and is described by the patient as lightning-like in character. At times, however, there is some warning of it in a sense of discomfort. This is a sort of aura in the chest and back. Gradually then the pain becomes worse until finally it takes on the cramp-like character of a true colic. There is usually a feeling of intense constriction around the waist. Vertigo occasionally accompanies the affection. Once Professor Ewald saw a true fainting spell that lasted for some time and seemed to have no other cause besides the irritation of the gastric nerve endings.

**Pre-ataxic Symptoms.**—Not infrequently these gastric symptoms occur for a long time before any characteristic ataxic symptoms can be discovered. There may be absolutely no difficulty of locomotion or station. In one of Professor Ewald's cases five years passed before the other symptoms of tabes became noticeable. In several cases more than a year of absolute freedom from any other tabetic symptoms was noted. The gastric pain is not accompanied by any definite invariable pathological change in the stomach contents. The most frequent change noted was a certain amount of subacidity. This seems to be due to a lowering of the activity of stomach functions generally. In the interval between the attacks the stomach contents show no signs of the condition. Usually the patient is quite comfortable as regards his gastric function, but at times there is a continuous dyspepsia of nervous character and likely to have anomalous symptoms. The diagnosis of the condition then must be made rather from the sudden and lightning-like attacks of the pain and the associated symptoms than from any information that can be obtained from the stomach.

**Rectal and Anal Crises.**—Intestinal crises are ever so much rarer than stomach crises. They occur usually in the rectum and anus. Intestinal crises of any kind are accompanied by board-like hardness of the abdomen, due to a tense contraction of the abdominal muscles occasionally with protuberances of parts of the wall because of spasm of the intestines situated directly below. Not infrequently gurgling sounds may be heard and after these the protuberances disappear. Usually these phenomena are followed by an intestinal movement and, as a rule, do not last long. Anal crises are accompanied by intense desire to go to stool which cannot be satisfied. Patients describe their sensations as being excruciatingly painful, as if a hot iron were being pushed up their rectum. Commonly these do not last long and then the patient is as well as ever. As with regard to gastric crises, the intervals between the attacks are likely to become shorter and the patients suffer obstinately and without much hope of relief until the further degeneration of nerve tracts destroys the sensory paths.

**Diagnosis of Gastric Crises.**—The diagnosis depends upon two elements, the previous history and the tearing, lightning-like character of the pain. When the attack occurs for the first time, diagnosis is extremely difficult. There is likely to be the thought of some serious intestinal condition, as obstruction or some intensely acute gastritis. Frequently when the vomiting is continued during the course of an attack it is difficult to separate it from functional nervous vomiting. There is a condition of periodic vomiting entirely neurotic in character, which occurs and may simulate a gastric crisis. Idiopathic vomiting as described by Leyden, that is recurrent attacks of vomiting without any gastric pathological conditions and without any nervous involvement must also be differentiated. This condition is not very frequent, however, and the attacks

are neither so violent nor so sudden in their onset and the patients are usually of neurotic family and personal antecedents.

The pernicious vomiting of pregnancy is, of course, well known and, as a rule does not require very careful differentiation from tabetic crises. It must not be forgotten, however, that women suffering from the beginning of tabes may become pregnant and that vomiting during pregnancy therefore does not always mean reflex vomiting from uterine stimuli. Stone in the kidney or biliary passages may give rise to distinct spasms of pain accompanied by vomiting. These may be recurrent in character and thus give rise to the suspicion of tabes. Serious mistakes may be made in this matter, especially as surgical intervention in biliary and other conditions should be undertaken early to be successful and the stomach specialist is expected not to allow the diagnosis to remain undecided too long.

**Mistakes of Diagnosis.**—There are a number of reported cases in the literature in which gastric crises were mistaken for other conditions, to the serious detriment of the patient. Werner reported a case in 1883 which, owing to the existence of pregnancy, was considered to be reflex vomiting, but after the uterus had been emptied the cervix thoroughly dilated and the interior cauterized, the attacks continued to recur. The painful seizures were then considered to be due to spasm of the pylorus and the attacks were supposed to be due to attempts of the stomach to pass along its contents through the contracted pyloric orifice. Accordingly a gastro-enterostomy was advised and after some delay was performed. Absolutely no effect was produced and the attacks continued to recur. The old theory that the condition was due to reflexes from the uterus was then taken up again and the patient's uterus and ovaries were removed. This procedure was also without good effect. Three years later the patient developed other signs of tabes and it became evident that the whole set of symptoms had been due to the degeneration of the cord and associated neurons.

**Causes of Gastric Crises.**—The true nature of the tabetic crises is as yet in the dark. It has been supposed that the degenerative process caused by the sclerotic condition affects the nucleus of the vagus and the ganglia associated with it. After complete degeneration has taken place the attacks cease and it is usually true that as the tabes progresses the attacks become less frequent and less bothersome and finally disappear entirely. This theory would not explain the gastric crises which precede all the other signs of tabes. For these the theory has been suggested that there is an irritant toxin in the blood of patients who have suffered from syphilis and that this causes an irritative degeneration of nerve substance with consequent production of attacks of pain in sensory nerves and vomiting because of the effect on the vagus which is connected reflexly with these and is distributed to all parts of the stomach.

**Treatment.**—Unfortunately with all our knowledge of the affection there is very little that can be done for the patients either during an attack or in the interval between attacks. There is no known means of surely shortening an attack. Various coal-tar products, especially antipyrin have given good results in certain hands, but have proved of no service to others at all. Morphine sometimes does good, but sometimes fails utterly to give relief. Where vomiting is a prominent symptom and more annoying than the pain, cerium oxalate has been known to do good, though in Professor Ewald's hands it has not proved of very great benefit. In the intervals between attacks strychnine has been recommended and, according to conservative observers, has been known to lengthen the time be-

tween attacks and to make succeeding attacks less severe than those that have preceded the administration of this treatment. It is evident that suggestion plays an important rôle in the treatment of the condition, since each new method that is invented does some good in the hands of the physician who originally suggests it. Morphine remains the drug to be depended on, but it must be increased very much in successive attacks in order to have a satisfactory effect. Professor Ewald has seen cases in which large amounts of morphine were employed with only a modicum of satisfaction. One-third to one-half grain of the drug may be given repeatedly at short intervals and only produce slight alleviation of the symptoms.

**Spinal Anesthesia.**—Dr. Corning suggested some years ago the use of injections of dilute solutions of cocaine into the spinal cord with the idea of producing spinal anesthesia. This suggestion was taken up by French surgeons and has now been employed sufficiently often to make it clear that there is very little danger associated with it. In the hands of certain observers this method has done more to relieve the pains of gastric and intestinal crises than any other. Where the crises recur frequently and where all the ordinary drugs fail to give much relief, this method of treatment should certainly be employed. Nothing is more discouraging than to see the remedies so often recommended fail one after another to give relief in the intense tearing pains which accompany gastric and intestinal crises. As closely related to intestinal and gastric crises, Professor Ewald considers that the tearing pains which sometimes affect the bladder in the course of tabes should also be mentioned. As in the corresponding anal crises, there is apt to be an intense desire to empty the viscus, which cannot be satisfied and the patient describes his feelings as being so excruciatingly painful that there is the impression of a red hot iron being forced through the urethra into the bladder. These are even more obstinate to treatment than are the intestinal crises and the method of spinal anesthesia seems specially indicated. Ordinary anodynes often fail entirely to have any effect and patients live in constant dread of the return of the awful pain. This is of itself sufficient to make their condition more miserable than it would otherwise be and probably also to shorten the intervals so that the physician should not hesitate to employ so apparently serious a remedy.

**Idiopathic Crises.**—There are a certain number of attacks of intense pain that occur in the abdominal region referred to the stomach or intestines or to the bladder that simulate the crises of locomotor ataxia yet have no connection with the disease. At least none of the characteristic signs of true tabes ever develop to make the diagnosis assured. These cases often yield to treatment by tonics, or by high irrigation. Needless to say in all cases ordinary methods of treatment by irrigation, washing out the stomach and the rectum and large intestine and also the bladder, must be tried before recourse is had to large doses of anodynes, or to the method by spinal anesthesia.

**American Universities and Hospitals.**—Professor Tillmanns, the distinguished German surgeon was then introduced and said that his visit to America had proved to him what magnificent work was being done in the universities and hospitals of this country. He feels that he is leaving the American shores a better surgeon than when he came. German students of medicine will have to come more and more to this country if they want to appreciate the progress that is being made by an enterprising people in the practical sciences and especially in the department of surgery. The hospitals of this country particularly are worthy of all praise and are models for the world. Professor Tillmanns con-

siders that he will always look back with the greatest pleasure on his visit to America and that he will feel the necessity for coming back again ere long in order not to miss any of the good work that is being done here.

**Germany and American Medicine.**—Dr. D. B. St. John Roosa said that in the early colonial days American medicine received its encouragement and the aid in scientific matters from Amsterdam. The first physicians who came to New York were pupils of the school of Boerhaave, of Leyden. After this the main influence in medicine came from Edinburgh. Munro's and Syme's influence were deeply felt by New York physicians and surgeons and as the country improved more and more physicians were enabled to go to study under their special care. Later France took the place of alma mater for American medical students and held it for many years. At the end of the first quarter of the century Laennec and a little later Nélaton and Trousseau were the masters in medicine to whom American medical students owed very much. It was only in the last quarter of the nineteenth century that Germans and German medical methods came to have the influence now so prominent in American medical matters. Roosa himself was one of the first to go to Germany before going to France for medical studies. On his return he translated several German works on the eye and ear into English. After 1870 German medical works began to be translated into English and it was not long before Virchow and others were the names most familiar to American medical students.

#### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

*Stated Meeting held at the New York Academy of Medicine, June 8, 1903.*

Ransford E. Van Gieson, M.D., in the Chair.

**Anesthetics.**—The first paper of the evening was by Dr. Edward Wallace Lee, on this subject. Speaking of spinal cocainization, he said that his experience with this method was limited to 15 cases, 12 of which were surgical and three obstetrical. In the latter it was not at all satisfactory, the injection apparently losing its anesthetic effect just at the time required, while the patients suffered from its unpleasant effects, nausea and extreme nervousness. In the surgical cases there was one abdominal section for tubo-ovarian abscess. The incision was made without the least distress to the patient, but when he inserted his fingers into the abdominal cavity she grew restless and highly hysterical. A loop of intestine presented itself in the wound, which, unfortunately, the patient saw. She became maniacal, and it was necessary to complete the operation under chloroform narcosis. In the other cases the results were fairly satisfactory, but not sufficiently brilliant to cause him to resort to spinal cocainization when any other form of anesthetic could be used with any degree of safety.

**Ethyl Chloride.**—For minor surgical procedures Dr. Lee has found this substance very satisfactory as a local anesthetic.

**Cocaine Local Anesthesia.**—The local and hypodermatic administration of cocaine he has found of very great service in innumerable instances. The following are the principal indications for its use: (1) A short operation; (2) no especially sensitive structures to be incised; (3) the ability to bring every part involved in the operation under the influence of the cocaine. (4) In patients whose condition of extreme exhaustion is such that the additional shock of a general anesthetic



would take away their only chance of life. When cocaine was first introduced he used it locally on mucous membranes, as in the nose, throat, mouth, vagina, rectum and penis, with good results as far as the anesthetic effect was concerned; but he soon discovered that he was employing it too freely and in too strong a solution, as it produced serious constitutional disturbances. Two cases were almost fatal, and these he described in detail. He has made several abdominal sections under the use of cocaine with gratifying results, and has employed the infiltration method in hernia and appendectomy. His most satisfactory results with cocaine as a local anesthetic have been on the extremities. Here he has made amputations, removed growths, curetted ulcers, ligated vessels, sutured wounds, etc. In his experience, if the extremity be elevated until gravity has quite blanched the member, and an Esmarch's bandage is then applied, local anesthesia has a wide range of usefulness and the patient does not suffer from such severe constitutional disturbances as when the cocaine is permitted to enter the general circulation.

**Suggestion and Deception.**—In a few instances Dr. Lee has been able to perform minor and superficial operations by assuring the patient that the part to be operated upon was not susceptible to pain; also by allowing the patient to believe that he was using a powerful local anesthetic, when nothing but sterile water or alcohol was employed. In a very few cases he has succeeded in placing a patient in a hypnotic state sufficient for a minor operation. One case in illustration of this was given.

**General Anesthesia.**—General anesthesia is to be performed in all cases where there is not some good and sufficient reason to contra-indicate its use. A feature of it which is one of its greatest advantages, but which is too little appreciated, is that blessed oblivion which envelops the patient throughout the operation. He has not been favorably impressed with the various combinations of ether and chloroform, preferring to use one or the other alone. Occasionally it may be advisable to discontinue the one and substitute the other, but even this does not seem to have many indications.

**Comparative Merits of Ether and Chloroform.**—

So far as safety was concerned, Dr. Lee said he was well aware that ether has the preference. It is its reputation for this which has made it the popular anesthetic, especially here in the East. Personally he has never seen a death from chloroform, while he has had two deaths which could be directly attributed to ether. Ether certainly has many disagreeable features: length of time required; quantity used; struggling stage of excitement; irritating effect on the respiratory tract. Moreover, it is almost invariably followed by nausea and vomiting. Its effects last for several days, the patient complaining of smelling and tasting it. It is also highly inflammable, a factor which generally precludes its use in obstetrics. He considered ether more dangerous than chloroform in Bright's disease, diseases of the respiratory tract, and grave vascular diseases. As a result of his own personal observation, he was prejudiced in favor of chloroform. While serving in 1880 as assistant to Donald Maclean, then Professor of Surgery in the University of Michigan, he administered it about five hundred times, not meeting with any unfavorable complications which would alarm him or discourage him in its use, and since then he had continued to employ it. From his personal experience he could not look upon ether as the safer of the two. Of late, however, he had to confess that he had become more tolerant to ether. In a number of cases it had been administered for him, preceded by nitrous oxide gas, by Dr. H. W.

Carter, with very satisfactory results, though at the same time he still noticed many disagreeable features attending its use. The proper administration of any anesthetic requires an expert; especially is this true of ether. Chloroform is the anesthetic to be used in operations about the head, face and neck. Here the cumbersome apparatus employed for ether will be in the operator's way and moreover the field of operation is liable to become infected. With a Junker's inhaler chloroform vapor can be administered through a nasal or tracheal tube, and the operator is not interfered with. In operations about the thorax and abdomen also he thought chloroform preferable, because the respiratory movements were not so much disturbed as when ether was used. He did not believe that death from chloroform was so sudden that there was no time to resort to restorative measures, as often stated. He had seen many cases, however, in which a fatal result was undoubtedly averted by the prompt recognition and treatment of unfavorable symptoms, such as extreme pallor, shallow respiration, cessation of capillary oozing, diminished force of the heart's action, and dilated and inactive pupils. He had never been careless with chloroform. He knew its dangers, and had taken every precaution to avoid them. In nervous, frightened and exhausted patients and in alcoholics he had frequently thought it advisable to give morphine and strychnine subcutaneously preceding the anesthetic.

**The Relation of the Anesthetist to the Patient and to the Surgeon.**—

This was the title of a paper by Dr. S. Ormond Goldan. He was firmly convinced, he said, that not until the anesthetist is fully recognized by all concerned as entirely separate from the surgeon, would anesthesia ever advance. When we come to consider his relation to the patient, we are met by the superficial assertion that there is no relation whatever between the two, and that the anesthetist is simply the assistant of the surgeon. If the necessity for the operation did not exist, it is contended, there would be no need for the surgeon; but to this it may be replied that without the anesthesia many lives would be sacrificed and all major work rendered largely impossible. Furthermore, it is argued that the surgeon has always assumed the entire responsibility for the operation, and that usage makes this condition of affairs correct. It is, however, precisely this assumption of responsibility, to which the surgeon has no right and which should not be expected of him, that has delayed the recognition of this important branch of medicine. As to usage, this has constituted the only excuse for some of the most outrageous customs in existence. A division of the responsibility, Dr. Goldan believed, afforded added security to the patient, while it was also just to the surgeon, who thus had the assurance of a cooperator of greatest potentiality in the success of his operative work and the patient's return to health. This direct relation of the anesthetist to the patient entails a proper examination of the patient by himself, and by such examination valuable points in reference to the anesthesia are often discovered. The selection of the anesthetic and method of administration, which from the nature of the case must be varied, should be largely the anesthetist's province. His direct relationship to the patient naturally obliges him to take every precaution during the administration, and, in addition, to be ready with measures for the treatment of shock. It has always seemed to him that anesthetic and surgical shock are so closely related that it is the duty of the anesthetist to be prepared to combat shock, no matter in what form it is manifested. The safe completion of the anesthesia, the minimizing of its after-effects, and the subsequent good condition of the patient must be intensely satisfactory to the an-

esthetist, as it is to the surgeon. The relation of the anesthetist to the patient being direct, he receives what he is justly entitled to, and no more; the full credit for his own work and a fee in accordance. As to the relation of the anesthetist to the surgeon, Dr. Goldan said that he had early recognized why anesthesia occupied such an inferior position, this being simply a question of fee. Any measure having for its object the greater safety of the patient and the more successful outcome of the operation was heartily endorsed by the profession, but not so a corresponding increase in fee. The customary fees for years previous were all for the surgeon, practically nothing for the anesthetist. Who fixed the anesthetist's fees? Certainly not himself. The idea of fixed fees must have been on a par with the belief, so long prevalent, that any one could give an anesthetic. As surgeons' charges are not fixed, there was no moral or legal reason why those of the anesthetist should be. As for himself, when asked as to this point, his reply was that his fees are from no charge in appropriate cases to anything the circumstances of the patient could justly afford. To fix an invariable charge for the surgeon would be as unjust as it would be impossible—the same practice must obtain with the anesthetist. It is a fact that the surgeon's charges are based principally on the financial standing of the patient. Considering the amount of work done gratuitously by the great mass of practitioners, it was his belief that the medical man is entitled to a maximum fee in every case treated. As, however, this in many instances would be a burden to the patient, the practitioner follows the beneficent plan of making his charges in keeping with the latter's circumstances. He does not overcharge the rich, but undercharges the poor.

In all cases operated upon the ethical responsibility is the same for the anesthetist as for the surgeon. From every standpoint, indeed, the two are upon an exact equality. This must be recognized sooner or later, and the signs of the times indicate it now. He had also realized at an early day that to practice anesthetization to the exclusion of other work involved an incompatibility of practicing medicine generally. If not, there must be for the anesthetist a sacrifice of principles and self-respect for the so-called patronage of the surgeon. As long as the operator can use the anesthetist to magnify his own work and minimize the other's, just so long will he continue to give him work, as he calls it. While, however, "any one can give an anesthetic," so can any one operate; but results secured in anesthesia, as in operation, depend much upon the man. Frequently in his experience the physical condition of the patient had been so poor that only by the variation of the anesthetic and the most painstaking care could the operation have been successfully concluded, and he was quite sure that in a number of instances it was only by the extremest attention to details during the conduction of anesthesia that the patient's life had been saved. He preferred to confine himself to medical work in which his individualism was not sunk in that of another, and therefore when any agreement to conduct an anesthesia was entered into by him, it was only when the principles indicated in this paper were subscribed to.

Many surgeons lose sight of the fact that the anesthetist by education and training is his professional equal. The anesthetist exerts his energies to secure a featureless narcosis, the surgeon his for a successful operation; both of necessity working hand in hand, the patient's welfare being the chief object sought. Having gained this, their relation ceases, the anesthetist and the surgeon's relations being then directly with the patient. Dr. Goldan said he had been accused of endeavoring to make anesthesia of too much importance. To this accusation

he pleaded guilty. He had always urged the importance of this subject, but consistently as regards every phase of it. Could too much importance, be asked, be given a subject so intimately associated with life itself, as anesthesia was? Many of his experiences as a specialist in anesthetics had been as instructive as they were entertaining, and what was most singular, they were often with those who prated much about ethics—ethics for others, but not for themselves. Similar experiences had been met with by others in all parts of the country from whom he had had communications. In conclusion he said he desired to express his appreciation to those practitioners who during their cooperation with him had shown that they had a proper conception of this subject.

**Cocaine Anesthesia.**—Dr. E. D. Fisher thought that spinal cocainization should be resorted to only in cases in which special circumstances contra-indicated other forms of anesthesia. In fractures of the spine, in which it would have been dangerous to practise sub-arachnoid injection, he had seen good results from the local injection of cocaine.

**Hypnotic Anesthesia.**—Personally Dr. Fisher's experience was against the use of hypnotism for anesthetic purposes. In one case in which it was employed for the reduction of severe contraction of the knee, just at the crucial moment of the operation the patient awoke to a realization of the most exquisite pain.

**The Surgeon and the Anesthetist.**—In his paper Dr. Goldan had placed the anesthetist on the same level with the surgeon, but he thought this was not altogether a correct position. The importance of having a specialist to administer the anesthetic, it seemed to him, depended on the character of the operation. The fee also, he believed, should be in accordance with the character of the operation, rather than with the length of the patient's purse. The anesthetist should, of course, be properly compensated for his services, but he would hardly place these on the same level as the surgeon's.

**Nitrous Oxide Gas.**—Dr. H. W. Carter said he had tried ethyl chloride as a general anesthetic, but found it less satisfactory than nitrous oxide gas. The use of the latter as a preliminary to etherization constituted an almost ideal method. No one anesthetic was to be preferred in all cases, but the nitrous oxide and ether sequence had many advantages. As a rule, it was the safest and best form of anesthesia, and when it was employed, very much less ether was required than when ether was given by itself.

**Morphine Objectionable.**—The preliminary administration of morphine had the effect of prolonging the narcosis. It was also apt to greatly increase the tendency to vomiting. If the patient was in good condition, it was not advisable to give any stimulant before anesthesia, and in general he thought it the best plan to wait until stimulation was actually needed before resorting to it.

**Good Results from Spinal Cocainization in Children.**—Dr. J. T. Gwathmey said that in Dr. Bainbridge's first thirty cases of spinal cocainization among children at the Randall's Island Hospital none of the unpleasant effects from this method noted by other operations was observed either during or after the operation. In one of the patients headache was caused, which lasted for two days, but that was all.

**Nitrous Oxide and Ether.**—As a rule, however, ether or chloroform was undoubtedly preferable. Now that the practice of using nitrous oxide gas as a preliminary to etherization had come into comparatively general use, he thought that the mortality statistics of ether would have to be revised. This method was so agreeable to the patient and was attended with so many



other advantages that it seemed almost criminal not to employ it wherever it was admissible. One of the principal objections to ether was its deleterious action on the kidneys, but, in consequence of the much smaller amount of the drug required when nitrous oxide was used first, he believed that this would in great measure be obviated. It was a fact that where we formerly had to give ounces of ether, we now gave only drams.

**Nausea and Vomiting.**—The nausea and vomiting so often seen after ether were apparently largely due to the impression on the olfactory. As the patient was coming out of the anesthesia, therefore, he thought it advisable that he should be allowed to inhale some substance, such as Cologne water, which had a pleasant odor, but which should not be too sweet. In this way we could do away with the saturation of the mucous membranes by ether.

**Local Anesthesia.**—Dr. A. E. Gallant said that in the local use of cocaine the trouble was that the injection was usually made under the skin or into the cellular tissue, instead of simply under the epidermis. If properly employed, about the same anesthetic effect could be obtained by the simple injection of sterile water, as it had been shown that this effectually obtunded the sensitive nerves.

**Small Doses of Morphine Advantageous.**—As to general anesthesia, much depended on the way in which we prepared our patients. It was his practice to give  $\frac{1}{11}$  or  $\frac{1}{8}$  grain of morphine (according to the size of the patient) one hour before operation. This small amount had the effect of quieting the respiration and the heart, and rendered the patient comfortable and cheerful.

**Nitrous Oxide Gas.**—As long ago as 1892 he began to use nitrous oxide as a preliminary to ether, and some of his experiences with it had been by no means pleasant. Under the excitement caused by it a vigorous patient could certainly occasion a great deal of trouble. It seemed to him that the day would come when this agent would be regarded as not altogether as harmless as was now generally supposed.

**The Administration of Ether.**—Personally he did not believe in cumbersome forms of apparatus. Without them he could maintain anesthesia for as long a time as was required for any operation, and yet with comparatively little risk. In giving ether he was accustomed to use the Allis inhaler, by means of which the ether is very thoroughly mixed with air, so that the patient does not suffer from the suffocation usually felt at first inhaling and does not have to breathe the same air over and over again. Being warm, the vapor does not irritate the lungs. The nausea from ether is largely due to the fact that after the ether has been carried through the circulation, more or less of it is excreted into the stomach. Hence the patient should be well washed out when the anesthesia is completed. He should drink plenty of hot water, and a saline injection should be made into the bowel. The stomach tube may be used for washing out the stomach, if desired.

**The Position of the Anesthetist.**—As to the fees received by the anesthetist, it had been his rule to allow him 10 per cent. of the amount charged for the operation, and this seemed to him an equitable arrangement. He did not think the anesthetist was in the same position as the surgeon, of whom more was required. The anesthesia specialists were undoubtedly deserving of great credit. They were doing good missionary work, but if they insisted on advancing unwarranted claims they would find their occupation gone. The result would be that this branch would be properly taught in all our medical schools and that their graduates would consequently be competent to administer anesthetics in a satisfactory manner.

## BOOK REVIEWS.

**DISEASES OF THE LIVER, PANCREAS AND SUPRARENAL CAPSULES.** By LEOPOLD OSER, M.D. of the University of Vienna; EDMUND NEUSSER, M.D., of the University of Vienna; HEINRICH QUINCKE, M.D., University of Kiel; G. HOPPE-SEYLER, M.D., University of Kiel. Edited with additions by REGINALD H. FITZ, M.D., Harvard University and FREDERICK A. PACKARD, M.D., Philadelphia. W. B. Saunders & Co., Philadelphia, New York, London.

THE present volume of the American edition of Nothnagel's encyclopedia of practical medicine reflects great credit on the American editors as well as on the publishers. Almost needless to say, Dr. Fitz has distinctly added to the value of the sections on diseases of the pancreas and of the suprarenal capsule. He modestly states that it has been his privilege to avail himself of the writings of Körte and of Mayo Robson, but his own additions are even more distinctly of value than any cited from others. Other American work of very high order has been incorporated in this present edition. Opie's observations on degeneration of the Islands of Langerhans in connection with diabetes is the most important of these additions, though it scarcely surpasses in interest Flexner's observations of fat necrosis. This volume contains also an account of the therapeutics of the suprarenal capsule and the active principles of these glands as studied in the last few years by Von Fürth and Takamine.

The section on diseases of the liver was edited by the late Frederick Packard, of Philadelphia, and as he was well known as a thoroughly competent and faithfully conscientious student of diseases of the liver these chapters have been brought well up to date. Dr. Packard's work in this volume represents almost the last medical writing that he did and some of his acute editorial observations and additions must stand as one of the worthy monuments of a brilliant young medical man cut off untimely.

This whole volume leaves nothing to be desired in the way of completeness of information, orderly arrangement of the text, thoroughgoing up-to-dateness, handiness for reference and exhaustive discussion of the subjects treated. The book is a noteworthy addition to American medical literature and well deserves a place in the library of every progressive physician.

**AMERICAN EDITION OF NOTHNAGEL'S PRACTICE.—DISEASES OF THE STOMACH.** By Dr. F. RIEGEL, of Giessen. Edited, with additions, by CHARLES G. STOCKTON, M.D., Professor of Medicine in the University of Buffalo. W. B. Saunders & Company, Philadelphia, New York and London.

THE present volume of the Nothnagel series keeps up the good work previously noted in this edition and makes it clear that between the American editors and the publishers this greatest of modern text-books of the whole subject of medicine is to have a worthy presentation to the English-speaking medical public. As in previous volumes, the work of the American editor constitutes a distinct addition of noteworthy value to the work of the original European writers.

The book-making in this volume is well up to the highest standard. The illustrations are well reproduced and add not a little to the value of the text. The illustrations of the various malpositions of the stomach, as seen by shadows on the abdominal wall after dilatation of the stomach by gas inflation, are especially helpful in the understanding of the symptoms and course of the conditions and of the indications for treatment.

All the methods of gastric diagnoses are thoroughly

exploited and a number of the editorial notes in this part of the work serve to bring the book down to the very latest date in medicine. The American editor has also introduced valuable hints from recent advances in therapeutics. The employment of adrenalin chloride for instance, in hemorrhage from the stomach, which was unknown to the European writers at the time of the issue of the German edition, finds its due place here. In the discussion of other drugs, notably bismuth, morphine and atropine, the editorial notes are of special value and contain many excerpts from recent literature.

There is perhaps a suggestion that would make these books more handy. With the present rather thick paper the volumes are bulky and liable to deteriorate easily from use; yet it would seem that they should be available for frequent reference for many years.

**THE BUCKEYE DOCTOR.** By WILLIAM N. PENNELL, M.D.  
The Grafton Press, New York.

THE physician in fiction is growing very popular, especially the true and noble, unhonored man, who gives his life to the simple countryfolk; and wins a bare living and their gratitude in return. Since the days of Ian MacLaren's "Country Doctor," this type of old-fashioned physicians is being worked into every story.

It is, therefore, something of a relief, as well as something of literary value, to find a humorous series of pen-sketches describing the crude and ignorant physicians of our own country a few decades ago.

"The Buckeye Doctor" deals with a situation and an environment much like that made famous by Edward Eggleston in his "Hoosier Schoolmaster."

A young, ambitious man, fairly well educated, and decent in his behavior, tries, as did many such some thirty years ago, to let his light shine in the midst of medical darkness, and barely escapes having it extinguished altogether.

Dr. Pennell does not tell us that the pages are autobiographic, but as they originated in a series of letters to his daughter while at college, we may feel sure that the conditions he describes, and the local coloring, as well as the vernacular give us a faithful representation of scenes that were once familiar. Though happily they are now in the past, there is nevertheless a distinct literary reason for preserving them. The thread of the story becomes woven into a very good and exciting plot, and innocence triumphs and the villain gets his deserts. But the chief interest to the physician is in the details that must have been jotted down from an observant memory of conditions that will become rarer each year.

**AMBULANCE WORK AND NURSING.** A Handbook on First Aid to the Injured, with a Section on Nursing. Profusely Illustrated. W. T. Keener & Co., Chicago.

THIS work, which is anonymous, is evidently written by one of large practical experience. We are told in the Preface that it was written by a specialist whose connection with ambulance work in this country entitles him to speak with authority upon the subject and the views set forth are the result of personal experience in the rendering of First Aid, coupled with a long acquaintance with the system of teaching employed by the leading ambulance associations of the world.

The value of prompt and intelligent assistance in many cases of accident or injury cannot be overestimated, as the comfort or even the safety of the sufferer may thus often be assured, pending the arrival of the surgeon or the removal of the patient to the hospital.

The industrial conditions of modern life, the introduction of vast intricate and often dangerous machinery in almost every field of labor has served to materially magnify the risks to life and limb, which are inseparable from many occupations. The number of accidents constantly occurring from diverse and almost innumerable causes emphasizes the importance of prompt and immediate aid to the injured.

It is the object of this work to diffuse among the masses some knowledge of their own bodies and to teach them how to act in rendering effective aid in such emergencies until the arrival of skilled medical assistance.

As the work is designed chiefly to meet the wants of the laity, the terms employed are as simple and non-technical as possible, and the general directions as to the management of the case, what is necessary to be done, and how to do it, are plain, clear and readily comprehensible.

An outline of the anatomy and physiology of the human body is given, followed by directions as to the management of cases of hemorrhage, wounds, fractures, dislocations and other injuries, burns, scalds, poisonings, the removal of foreign bodies from the eyes, ears, and nose, etc., with a chapter on the carrying of the injured to the hospital and stretcher exercises.

The second part is devoted to nurses and nursing, massage and allied forms of treatment, concluding with a chapter on bone setting and bone setters.

The photographic illustrations are original, and for the most part, are of especial excellence. The proper methods of bandaging, the application of different forms of bandage, the use of splints, etc., are photographed from the living subject and convey more clearly what is sought to be conveyed than any amount of descriptive text. The general make-up of the book is handsome and attractive, the typography is excellent, the binding durable and the size convenient.

**HOW TO KEEP WELL. AN EXPLANATION OF MODERN METHODS OF PREVENTING DISEASE.** By FLOYD M. CRANDALL, M.D. Doubleday, Page & Company, New York.

There has been no class of literature so much abused by the quack and so little cultivated by the educated man as popular medical writing.

In it the charlatan has found a rich mine and the various popular health journals that are springing up over the entire country are evidence of a great need heretofore pandered to by truculent and money grubbing shysters. Even the popular works on medicine have for the most part been beneath contempt.

It is a healthy sign then of enlightened publishing spirit to find a readable and scientific work on popular medicine written by an author of acknowledged standing and of high literary and scientific attainments.

Dr. Crandall has written a very excellent popular work on medicine. One that can with profit and propriety be recommended by the profession to the laity. He discusses the general causes of disease, and then takes up some of the modern modes of treatment by vaccines, antitoxins, etc. Modern surroundings and their relationship to disease is well written and such miscellaneous topics as Rearing of Children, Diet for Children, Heredity, Regimen for Adult Life, Dangers Common to Middle Life, The Sedentary Life, Age and its Advancement, are all full of good counsel and interest.

We recommend this work unhesitatingly to our readers and wish for it a wide and hearty reception by the public, medical as well as lay.